

# Development of Dietary Guidelines for Malaysians

Tee E Siong and Azmi Md Yusof

## Introduction

Malaysia comprises Peninsular Malaysia, Sabah and Sarawak. The Peninsula is situated south of Thailand while Sabah and Sarawak occupy northern Borneo. Sabah and Sarawak are separated from the Peninsula by the South China Sea. Peninsular Malaysia consists of 11 states and the Federal Territory of Kuala Lumpur.

The outstanding characteristic of Malaysia's population is its highly variegated ethnic mix that makes it one of the prime examples of a multi-racial society. The multi-ethnic character of the country's population has come into being over the last 150 years. Broadly speaking, Malaysia's ethnic groups fall into two main categories, namely, the *bumiputera* and non-*bumiputera* groups.

The *bumiputera* groups are highly differentiated. There are three broad categories: (1) aborigines (*orang asli*), (2) Malay, and (3) Malay-related. The non-*bumiputera* groups consist primarily of the Chinese and the Indians, with much smaller communities made up of Arabs, Sinhalese, Eurasians and Europeans. Estimates of the proportions of the various ethnic groups in the country for 1992 were: 62 percent Malay and other indigenous groups, 29 percent Chinese, 8 percent Indian and 1 percent for all others.

Malaysia has undergone tremendous socioeconomic development since the country gained independence in 1957. It has achieved sustained rapid economic growth with a low inflation rate, and has significantly reduced poverty among the multi-racial communities.

Malaysia's population has been growing at an average of 2.5 percent per annum, from 8.4 million in 1960 to 18 million in 1990 (1). This rate is considerably higher than the average rate of 1.7 percent for the world as a whole.

Largely as a result of declining fertility, there has been some shift in the age composition of the population during the past decades. The proportion of the population below 15 years of age declined from 45 percent in 1960 to 37 percent in 1990. The population of the economically active age group (15-59) has increased correspondingly from 50 percent to 58 percent. On the other hand, the proportion of elderly (60+) has increased only marginally. Consequently the median age increased from 17.5 to 21.8 years in the last 30 years. With the expected decline in fertility, the population will continue to age.

Life expectancy at birth for Peninsular Malaysian males increased from 66.4 years

in 1980 to 69.0 years in 1992. The corresponding figures for the females are 70.5 years and 737 years.

### Nutrition situation

Two main types of data are presented to describe the nature and dimensions of nutritional problems in the country, namely, selected mortality rates for various population groups and epidemiological data reported by various investigators (2).

#### *Mortality data*

Several mortality rates have been used as proxy indicators of the nutritional situation in the country. Some of these data were compiled from various reports of the Department of Statistics to illustrate the improving nutrition situation in Malaysia.

Infant, toddler and maternal mortality rates in Peninsular Malaysia illustrate the health and nutritional status of these vulnerable groups of the population. There has been a dramatic decline in these rates since the country gained independence in 1957. Infant mortality rates declined from 76 in 1957 to around 12 in 1992. Over the same period, toddler (1-4 years) mortality rates dropped from 10.7 to 1.0, while maternal mortality dropped from 3.20 to 0.20.

#### *Nutrient deficiencies*

Although the mortality data indicate the overall nutritional status of the country or state, they do not show the problems existing at the micro level. Thus, while the overall nutrition situation in the country has improved over the years, pockets of malnutrition exist among various rural and urban underprivileged communities. Overt nutritional deficiencies have rarely been encountered but mild to moderate undernutrition affects significant proportions of the population (3).

The major nutrient deficiencies in the country are protein-energy malnutrition among children, chronic energy deficiency in adults, and deficiencies in several micronutrients, namely iron, vitamin A and iodine. Frank nutrient deficiencies are rare but moderate undernutrition is widespread especially among rural under-served communities, and affects mainly young children and pregnant women. Underweight and stunting occur in significant proportions of pre-school and school children.

Several studies on anaemia in Malaysian children have been carried out since the 1950s. Results of large-scale surveys reported in the last 15 years show that the highest prevalences of anaemia are often found in the first two years of life and range from 30 to 60 percent in Sarawak, 15 to 30 percent in Sabah, and 12 to 83 percent in Peninsular Malaysia. A decrease in prevalence has occurred between the 1950s and the 1980s. But the problem remains of considerable magnitude among adolescent girls in Sarawak, where the prevalence of anaemia was found to range widely from 9 to 36 percent (4). The main causes of anaemia among children are considered to be inadequate supplementary feeding and poor weaning practices resulting in lack of iron, protein and other nutrients. In some communities, intestinal helminthiasis and malaria contribute to anaemia. Anaemia in pregnancy was recognized by early Malaysian investigators as a major cause of maternal mortality and one of the main complications of pregnancy. In the 1950s and 1960s, about 77 percent of pregnant women were found to be anaemic. More recent

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studies have shown that the prevalence of anaemia ranged from 30 to 60 percent depending on the communities.

The prevalence of vitamin A deficiency has clearly been reduced since the 1950s when it was the single major cause of blindness. No precise estimates of the magnitude of the problem are presently available. It is believed that there are probably very few cases of children with eye signs more advanced than conjunctival xerosis, and with serum vitamin A <10 micrograms per milliliter. There are, however, many remote areas in the country where the vitamin A status is not known, including parts of Peninsular Malaysia. The problem has been little studied among urban squatters.

The problem of endemic goitre in Malaysia has been documented since the 1930s. Low levels of iodine in water and salt and low consumption of sea foods are considered the main determinants. Goitrogens contained in cassava, which is consumed in greater quantity by some hill tribes in Sarawak when their supplies of rice are exhausted, may also play an important role in some population groups. Goitre is found more frequently in females.

A 1982 review of the various studies conducted in Sarawak since the 1950s shows that goitre is endemic in 12 of the state's 25 districts, located mainly in inland areas, with prevalence rates that vary considerably among different communities. Few studies on endemic goitre in Sabah have been conducted. A recent one reported a high prevalence rate related with the degree of remoteness of the areas studied. It was found that only 3 percent of the people used iodized salt.

#### *Diet-related chronic diseases*

As a result of the rapid socioeconomic development and increased affluence in Malaysia, there has been a definite change in the nutritional problems in the country. The population is now faced with the other facet of the malnutrition problem, namely, chronic diseases associated with excessive consumption of various nutrients (e.g., fat), on the one hand, and low levels of intake of other nutrients (e.g. complex carbohydrates and fibre), on the other. Such diseases include hypertension, coronary heart disease, and certain types of cancers.

Mortality data for Peninsular Malaysia show that deaths due to diseases of the circulatory system and neoplasms have been on the rise since the 1960s (Figure 1). On the other hand, deaths due to infectious and parasitic diseases and conditions in the prenatal period have been reduced in number, reflecting the improved health care facilities in the country over the past three decades. Within the category of "diseases of the circulatory system" the two main causes of death are ischaemic heart disease, cerebrovascular disease, and acute myocardial infarction. Since medically certified and inspected deaths totalled only slightly over a third of all reported deaths in Peninsular Malaysia, the data should be used with caution.

An examination of the official statistics of medically certified and inspected deaths in Peninsular Malaysia for 1970, 1980 and 1990 shows significant changes in the ranking of causes of death in the country for the three time periods. In 1990, diseases of the circulatory system topped the list of ten leading causes of death in the country. Ranking third in the list is deaths due to neoplasms. The two major cancer sites are the digestive

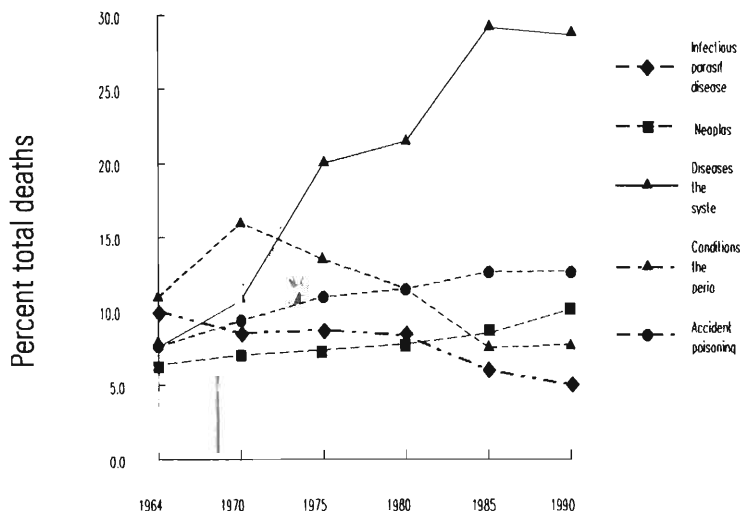


FIGURE 1. Leading causes of medically certified and inspected deaths in Peninsular Malaysia, 1965-1990. Source: Reference 5.

organs and peritoneum, and respiratory and intrathoracic organs. These two categories together constitute close to 40 percent of all medically certified deaths.

Studies of the relationship between diet and coronary heart disease (CHD) have been carried out since the 1960s. Several studies on serum lipid levels of Malaysians have shown that hyperlipidemia is a problem among the more affluent segments of the population. In a study of 406 male executives in two urban areas, Kuala Lumpur and Petaling Jaya, Teo, Chong and Zaini (6) noted that several of the risk factors studied were comparable with those reported for other more industrialized countries.

The prevalence of obesity, an important risk factor in CHD, has been studied among various population groups (6 to 10). Often, these studies were based on the definition of body mass index (BMI) as between 25 and 29.9 kilograms per square meter for overweight and >30 for obesity. Several recent studies carried out seem to indicate an increasing problem of overweight and obesity among the urban population (Table 1). Changing food habits and sedentary lifestyles are said to be responsible for the increasing prevalence of overweight in the urban middle-income population.

As shown in Table 2 even among rural communities, the problem of overweight appears to be on the increase (10 and 11). Although the sample size in some of these studies is rather small, the findings do indicate some cause for concern and the need for more serious studies and interventions.

**TABLE 1.** Prevalence of overweight and obesity among selected urban population groups.

	Urban executives (6)	Urban adults (7)		Urban Malay executives (8)		Urban lower income (9)	
		Male	Female	Male	Female	Male	Female
n	406	455	172	13	69	87	157
% underweight	NA	2.0	10.0	5.1	4.3	NA	NA
% desirable weight	NA	60.0	65.0	42.3	42.0	NA	NA
% overweight	28.7	NA	NA	37.2	39.1	28.0	33.0
% obese	2.7	NA	NA	15.3	14.5	17.0	20.0
% overweight + obese	31.4	38.0	25.0	52.5	53.6	45.0	53.0
mean BM $\pm$ SD	23.8 $\pm$ 2.7	24.5 $\pm$ 3.2	23.1 $\pm$ 3.6	25.9 $\pm$ 4.3	24.4 $\pm$ 4.0	NA	NA

NA = data not available

**TABLE 2.** Prevalence of under- and overweight among rural villagers.

	Poverty villages (11)	Bagan Datoh (10)
<b>Males</b>		
n	522	190
% underweight	45.0	24.5
% desirable weight	50.0	52.0
% overweight + obese	5.0	23.5
mean BM $\pm$ SD	20.5 $\pm$ 2.8	22.6 $\pm$ 4.3
<b>Females</b>		
n	965	237
% underweight	31.0	14.0
% desirable weight	54.0	40.0
% overweight + obese	15.0	46.0
mean BM $\pm$ SD	20.9 $\pm$ 3.4	24.3 $\pm$ 4.4

### Development of nutritional and dietary guidelines

In Malaysia, nutritional and dietary guidelines are principally formulated by the Ministry of Health (12). The first set of guidelines was formulated in the 1970s with the launching of the Applied Food and Nutrition Programme in 1971 (13). This was reviewed and expanded in 1987 by a group of nutrition officers during a workshop at the Institute of Public Health (14).

#### *Guidelines for the vulnerable groups*

The earliest guidelines focused on the promotion of a balanced diet based on three food groups: the Energy-Giving Food Group, the Body-Building Food Group, and the Protective Food Group. Basically, the guidelines recommend that everyone should eat at least one type of food from each food group to ensure a balanced diet.

In addition, specific guidelines were formulated for breastfeeding and weaning. Recommendations were also made regarding the daily food intakes for infants, toddlers, preschoolers, schoolchildren, and pregnant and lactating women. The guidelines encouraged mothers to breastfeed up to 6 months and wean at 5 - 6 months. Infants 5 - 6 months old are to be given one serving of cooked meal and one serving of fruit meal in a day while infants 7 - 12 months old are to be given two servings of cooked meal and one serving of fruit meal. Foods for infants 5 - 6 months old should be mashed and strained. For infants 7 - 9 months old the food should be strained and for infants 10 - 12 months old the food should be chopped. Children aged one year and above are to be given the family food.

These guidelines are still in use today. However, the breastfeeding guidelines were revised in 1992 with the formulation of the Breastfeeding Policy to promote exclusive breastfeeding for 4 - 6 months and to continue with supplementary feeds up to two years.

The serving size of the foods recommended for the various age groups was also revised with the formulation of the Recommended Daily Food Allowances in 1987. The allowances are essentially a practical translation of the Suggested Daily Dietary Intakes for Peninsular Malaysia, 1973 (Table 3). The allowances are in the form of functional groupings of foods together with recommended serving sizes designed to supply all the calories, protein, iron, vitamin A and vitamin C that the body needs.

#### *Guidelines for the promotion of healthy lifestyles*

In cognizance of the increasing incidence of non-communicable diseases, the Ministry of Health launched a comprehensive campaign for the promotion of healthy lifestyles among Malaysians. Additional nutritional and dietary guidelines for the prevention and control of these diseases were formulated with the launching of the Healthy Lifestyle Campaign in 1991. These guidelines were formulated by the various multidisciplinary Technical Sub-Committees formed according to the specific theme for the year.

Dietary guidelines for the prevention and control of obesity was formulated in 1991 (15) and guidelines for growth promotion in 1994 (16). The following year, guidelines for the prevention of cancer was formulated (17). In the last year of the five-year Healthy Lifestyle Campaign in 1996, the focus was on the prevention of diabetes mellitus. A great

TABLE 3. Suggested Daily Dietary Intakes (1) - Peninsular Malaysia - 1973

Age Years	Weight Kg	Activity	Energy Kcal	Protein Score = 70(3) g	Ca mg	Fe mg	Vita A (Retinol) mcg	Vit D (5) mcg	Thiamine mg	Riboflavin mg	Niacin Equiv mg	Folic Acid (6) mcg	Vit B12 (7) mcg	Ascorbic Acid mg
<b>ADULTS</b>														
<b>MEN</b>														
20-39	55	Moderate	2,530	45	450	9	750	2.5	1.0	1.5	16.7	200	2.0	30
40-49	55	Moderate	2,400	45	450	9	750	2.5	1.0	1.4	15.8	200	2.0	30
50-59	55	Moderate	2,280	45	450	9	750	2.5	0.9	1.4	15.0	200	2.0	30
60-69	55	Moderate	2,020	45	450	9	750	2.5	0.8	1.2	13.3	200	2.0	30
70+	55	Moderate	1,770	45	450	9	750	2.5	0.8	1.2	13.0	200	2.0	30
<b>WOMEN</b>														
20-39	50	Moderate	2,000	37	450	28	750	2.5	0.8	1.2	13.0	200	2.0	30
40-49	50	Moderate	1,900	37	450	28	750	2.5	0.8	1.2	13.0	200	2.0	30
50-59	50	Moderate	1,800	37	450	9	750	2.5	0.8	1.2	13.0	200	2.0	30
60-69	50	Moderate	1,600	37	450	9	750	2.5	0.8	1.2	13.0	200	2.0	30
70+	50	Moderate	1,400	37	450	9	750	2.5	0.8	1.2	13.0	200	2.0	30
<b>PREGNANCY</b>														
1st trimester +150														
2nd, 3rd trimester +350														
for 6 months +2.3														
+13														
+7.5														
+2.3														
+0.2														
+2.3														
+1.0														
<b>LACTATION</b>														
for 6 months +550														
+24														
+7.5														
+0.3														
+3.6														
+100														
+0.5														
<b>INFANTS</b>														
0-1 112														
per kg/day 0.47														
2.4 - 1.4														
per kg/day														
<b>CHILDREN</b>														
1-3 1,360														
4-6 1,830														
7-9 2,190														
57														
7.6														
29														
35														
10.9														
10.3														
10.8														
<b>BOYS</b>														
10-12 2,600														
13-15 2,450														
16-19 2,580														
43														
53														
54														
650														
18														
725														
750														
2.5														
2.5														
1.0														
1.6														
17.2														
100														
200														
200														
2.0														
2.0														
2.0														
<b>GIRLS</b>														
10-12 2,350														
13-15 2,200														
16-19 2,100														
41														
45														
43														
650														
24														
725														
750														
2.5														
2.5														
0.9														
1.4														
15.5														
100														
200														
200														
2.0														
2.0														
2.0														

**NOTES.**

- (1) Adapted from:  
a. Recommendations by PHAMHOMRAM Technical Subgroup, 1969  
b. WHO Tech Rep Series No 230, Geneva, 1962  
c. WHO Tech Rep Series No 301, Geneva, 1965  
d. WHO Tech Rep Series No 362, Geneva, 1967  
e. WHO Tech Rep Series No 452, Geneva, 1970  
f. WHO Tech Rep Series No 522, Geneva, 1973  
(2) MJ = MegaJoules
- (3) Score - a term used to describe the quality of proteins on the basis of essential amino acid composition.  
(4) Recommended intakes of iron based on absorption of iron under different dietary conditions. For Malaysia, absorption assumed to be 10%.  
(5) Adequate exposure to sunlight may partially or totally replace dietary Vitamin D. No values for Vitamin D content of foods available in food composition tables for Malaysia  
(6) No values for Folic Acid content of foods yet available in food composition tables for Malaysia  
(7) No values for Vitamin B12 content of foods yet available in food composition tables for Malaysia



deal of emphasis was given to practicing a healthy dietary pattern and taking up regular exercise programmes.

The dietary guidelines for obesity provide appropriate advice on selecting a balanced diet that promotes health for the population concerned. The basic guidelines adopted by the Ministry of Health are quite similar to those adopted in many developed countries and are based on those recommended by the World Health Organization (WHO) (18). It includes the following principles:

- Adjust energy intake to energy expenditure to maintain desirable weight.
- Avoid excessive fat intake, especially intake of saturated fat and cholesterol.
- Increase intake of complex carbohydrates and dietary fibre and limit sugar.
- Limit salt intake.

An important characteristic of the nutrition and dietary guidelines is that it has become the guiding principles of nutrition training provided to medical and health staff as well as advice to the public. This helps to ensure that consistent and scientifically sound messages are given, which can be supported through the mass media, food advertising, and public and institutional feeding, including school feeding programmes and food assistance programmes.

Part of these guidelines are also incorporated in the prime messages of *Facts for Life* (19), a publication which contains information to be communicated to every family. This document was developed by the Ministry of Health in collaboration with the Ministry of Rural Development, Ministry of Education, Ministry of National Unity and Community Development, and UNICEF.

### Recent developments

The Ministry of Health Malaysia recognizes that the healthy lifestyle campaigns carried out from 1991 to 1996 need to be given further impetus to achieve the desired improvements among the communities. Because the inculcation of a culture of healthy eating is the ultimate strategy toward improving the nutritional health of the population, the theme of the first year of the second phase of the Healthy Lifestyle Campaign of the Ministry of Health shall be "Healthy Eating." Preparations for the Healthy Eating campaign include the development of a set of dietary guidelines to be disseminated to all segments of the population. In view of the increasing problem of diet-related chronic diseases outlined above, the focus is on the prevention and control of these diseases. A set of dietary guidelines has been prepared to promote healthy eating practices, including some aspects of food safety, nutritional labeling, weight management and exercise. The food pyramid shall also be introduced in the country for the first time.

Following the convening of the International Conference of Nutrition by FAO/WHO in 1992, the National Plan of Action for Nutrition of Malaysia (NPANM) was prepared by an inter-sectoral committee, the National Coordinating Committee for Food and Nutrition (NCCFN). The NPANM identified a variety of programmes and activities to be carried out for the improvement of the nutritional status of Malaysians during the 7th Malaysia Plan period (1996-2000). Nine thrust areas were identified, among which are improving household food security, protecting consumers through improved food quality and safety,

cares for the socioeconomically disadvantaged and nutritionally vulnerable, and the improvement of the health and nutritional status of the population through the promotion of healthy diets and lifestyles. It is hoped that most of the activities recommended will be implemented in the 7th Malaysia Plan period. Some of the programmes in the NPANM are in fact ongoing activities of several ministries. To further implement specific activities, three Technical Working Groups (TWGs) have been formed: Research, Training, and Dietary Guidelines. The TWGs have worked out their terms of reference and embarked on a number of activities.

The TWG on Dietary Guidelines has recently completed the development of a set of national dietary guidelines for Malaysians. A meeting was held to obtain the consensus of all institutions and organizations involved with health and nutrition promotion on the proposed guidelines. The first set of official national dietary guidelines is expected to be formalized soon.

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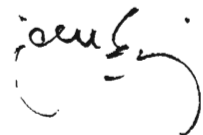
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Published by:  
ASEAN-New Zealand IILP  
Project 5, Philippines  
c/o College of Home Economics  
University of the Philippines Diliman  
Quezon City, Philippines  
1997



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ISBN 971-91524-1-9

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