

# Nutrition and the Malaysian Healthy Lifestyle Programme: Challenges in implementation

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There are significant differences in the food consumption patterns of countries. In the lower income countries, most of the energy intake is derived from cereals and starchy roots. On the other hand, the intake of these carbohydrate foods is much lower in the economically developed countries and more of the energy is derived from added fats, alcohol, meat, dairy products and sweeteners. The contribution of energy from various food groups has changed markedly over the past three decades. With increasing national wealth there is a general tendency for the consumption of cereal foods to decline, whereas the consumption of added fats, alcohol, meat and dairy products has increased over the years. Similar changes have also been observed for Malaysia. These dietary alterations, as well as other lifestyle changes, have brought about a new nutrition scenario in many developing countries. These countries are now faced with the twin problems of malnutrition, that is, undernutrition among some segments of the population and diet-related chronic diseases in other groups; for example, obesity, hypertension, coronary heart disease, diabetes and various cancers. In Malaysia, deaths due to diseases of the circulatory system and neoplasms have been on the rise since the 1960s. The former has been the most important cause of death in the country for more than 15 years, with cancer ranking third for almost 10 years. Epidemiological data collected from different community groups showed increased prevalences of various risk factors amongst Malaysians. In view of the changed nutrition scenario in the country, intervention programmes have been reviewed accordingly. The Healthy Lifestyle (HLS) Programme was launched in 1991 as a comprehensive, long-term approach to combating the emerging diet-related chronic diseases. For six consecutive years one thematic campaign per year was carried out; namely, coronary heart disease (1991), sexually transmitted diseases (1992), food safety (1993), childhood diseases (1994), cancers (1995) and diabetes mellitus (1996). To further strengthen health promotion among the community, another series of activities to be carried out under the second phase of the HLS programme from 1997 to 2002 was launched within the framework of the National Plan of Action on Nutrition (NPAN) for Malaysia. In view of the importance of diet and nutrition in the causation and prevention of chronic diseases, the theme for the first year of this phase was Healthy Eating. It is clear that nutrition education for the community in order to inculcate a culture of healthy eating is the long-term solution. A series of guidelines have been prepared for dissemination to the public via a variety of media and approaches, and with the collaboration of various government and non-governmental organisations. The implementation of the programme is, however, a challenge to health and nutrition workers. There is a need to examine the strategies for nutrition education to ensure more effective dissemination of information. The challenge is to determine how best to promote healthy eating within the present scenario of rapid urbanisation, 'western' dietary pattern influence, a whole barrage of convenience and 'health' foods, and nutrition misinformation. We would like to share our experiences in the approaches taken and our concerns with other countries in the region given that various opportunities exist for collaboration.

**Key words:** nutrition, Malaysia, healthy lifestyle programme.

## Introduction

Over two decades of sustained economic growth in the region and increasing political stability in many South-East Asian countries has brought about rapid advances in the socio-economic situation in these countries. This has resulted in significant changes in the lifestyles of communities, including food habits, and food purchasing and consumption patterns. Significant demographic changes have also occurred over the years. The combined effect of these changes is a definite change in the food and nutrition issues facing the communities in countries in the region. Nutritional deficiencies in many of these countries are slowly being decreased in magnitude. However, significant proportions of the population are 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. The increased prominence of these chronic diseases, such as hypertension, coronary heart disease, diabetes mellitus and certain types of cancers, is evident from mortality and epidemiologic data. These new dimensions in the nutrition situation pose great challenges to the nutritionists and other health workers in these countries.

An abundance of evidence has been accumulated supporting the role of diet in the development of the aforementioned chronic diseases. The World Health Organization (WHO) and the Food and Agriculture Organization (FAO)

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have put great deal of emphasis on these disorders. Several expert consultations have been convened to recommend appropriate intervention strategies.<sup>1</sup> The most prominent of these efforts in recent years has been the convening of the FAO/WHO International Conference on Nutrition in 1992, during which the World Declaration and Plan of Action were adopted. One of the nine thrust areas in the Declaration is the promotion of appropriate diets and healthy lifestyles for the prevention and control of these chronic diseases, which have become cause for grave concern to many governments.

Various intervention programmes have been undertaken by authorities to tackle the co-existence of twin faces of malnutrition in many developing countries. Many governments have re-examined and redefined health policies and strategies in order to continue to eliminate nutrient deficiencies while at the same time adequately controlling the increase of diet-related chronic diseases. It is a challenge for health authorities in developing countries to develop these programmes with the resources available.

This presentation first summarises changes in the dietary patterns of communities and the resultant changes in disease patterns, with examples from Malaysia. The paper proceeds to highlight the Healthy Lifestyle (HLS) Programme implemented by the Ministry of Health Malaysia as a long-term intervention strategy to tackle the changed scenario in health problems in the country. The focus of this paper is to discuss challenges in the implementation of the HLS Programme. We would like to share our experiences in the approaches taken and our concerns with other countries in the region given that various opportunities exist for collaboration.

### Changes in dietary pattern

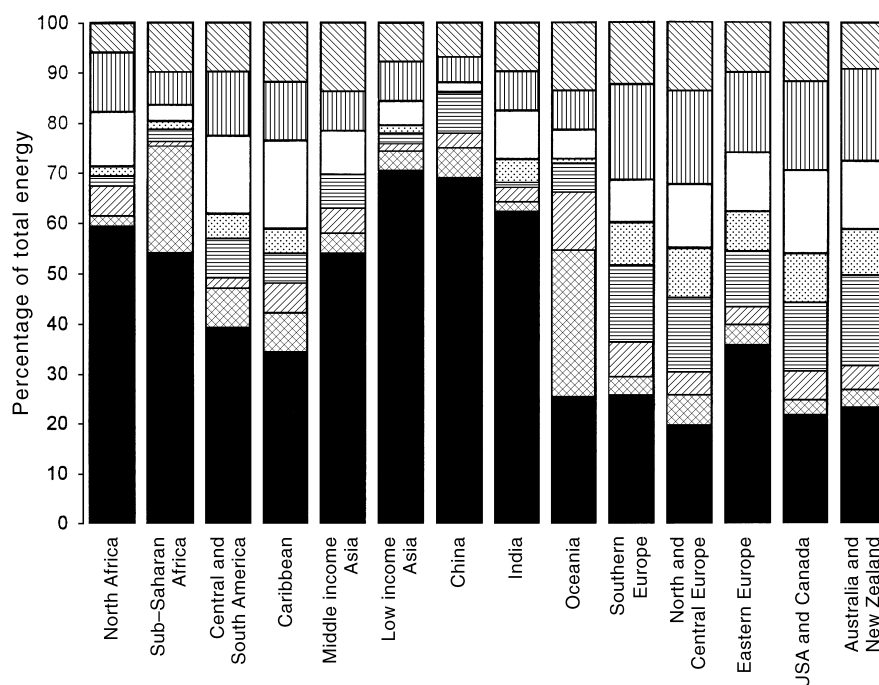
Food balance sheets (FBS) compiled regularly by FAO provide information about average food availability per person per day and may not be equated with consumption levels. There are various recognised limitations in the use of these data. Nevertheless, FBS data are useful in indicating probable trends in food consumption patterns. This discussion on changes in dietary pattern relies a great deal on FBS data as

there are no national food consumption data available for many countries in the region.

The 600-page report examining the relationship between food, nutrition and cancer by the World Cancer Research Fund (WCRF) and the American Institute for Cancer Research (AICR) has presented, in some detail, changes in dietary pattern in different countries and regions of the world, in relation to cancer development.<sup>2</sup> On a global scale, there are significant differences in the consumption of major food crops as percentages of total energy intake (Fig. 1). Using 1990 FBS data to illustrate, in Africa and the lower income areas of Asia, 50% or more of the total energy intake is derived from cereals, and to a lesser extent, starchy roots. However, in Europe and North America less than 25% of the total energy is supplied by cereals. Consumption of added fats, alcohol, meat, dairy products and sweeteners is generally reciprocal with consumption of starchy staples. For example, in the developing countries in Asia and Africa mentioned above, less than 10% of total energy is supplied by meat whereas in the economically developed countries, including Australia and New Zealand, more than 15% of total energy comes from meat. A similar picture is seen for consumption of fats and oils.

This contribution of energy from various food groups has changed markedly over the past three decades (1960–90) on a global scale. There is a general tendency for the consumption of cereal foods to decline over the years and for the consumption of added fats, alcohol, meat and dairy products to increase over the years. Added fats and milk appear to show the most striking increases (Fig. 2).

Focusing on countries in Asia (Fig. 1), it can be seen that cereals (mostly rice) provide the main source of energy to the population. Consumption of cereals varies inversely with income status of the countries. The highest levels of consumption (about 70%) are observed for low-income Asian countries, including China and India. The diets in these countries generally contain few animal foods and only small amounts of vegetables and fruits. In middle income Asian countries, including those in the Middle East, cereals provide



**Figure 1.** Differences in food sources of energy in different regions of the world, 1990.<sup>2</sup> (■), Cereals; (▨), starchy roots; (▧), vegetables and fruits; (▩), meat; (▪), milk and dairy products; (□), added sugars; (▨), added fats; (▧), others.

approximately 55% of total energy, whereas in high income countries they provide approximately 40%.<sup>2</sup>

Marked changes in consumption patterns in Asian countries have taken place from 1960 to 1990 (Fig. 3). Most countries showed a decrease in cereal consumption, except for low income countries where average consumption has remained more or less stable. In contrast, there has been an increase in the consumption of added fats in most countries. The most affluent countries show an increase in vegetable and fruit consumption. Meat consumption (and thus saturated animal fats) increased markedly in some countries; for example, South Korea, China and Japan recorded 250–330% increases. The consumption of milk and dairy products has increased in only a few countries.

An analysis of FBS food availability for Malaysia in the past three decades also indicated similar dietary changes in the country. From the 1960s to the early 1990s there was a trend of increasing per capita availability of the major macronutrients, calories, fat and protein, and particularly in the former two nutrients (Fig. 4).

The changes in the sources of available calories in Malaysia over the three decades are given in Fig. 5. A decline in calories from complex carbohydrates, notably cereals, has been observed. At the same time, the availability of fruits and vegetables has not increased markedly. There was a concomitant increase in the proportion of calories from oils and fats, and sugars, as well as from animal sources (i.e. meat, fish and eggs over the last two decades). A similar presentation of changes in sources of available protein from the 1960s

to the 1990s is given in Fig. 6. Changes over the years are seen to be similar to those observed for the available calories.

Analysing the percentage contribution of the three main nutrients (i.e. carbohydrates, fat and protein) to the total

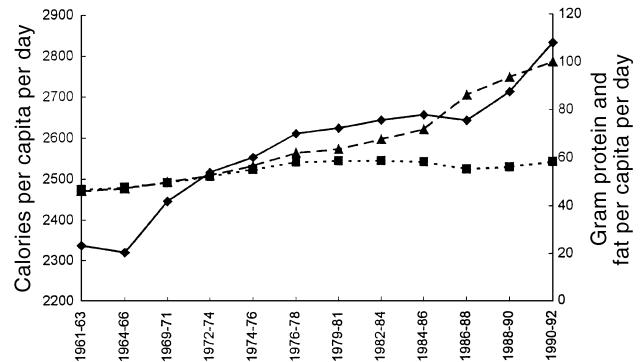


Figure 4. Changes in availability of calories, protein and fat in Malaysia, 1961–92.<sup>5,6</sup> (◆), Calories; (■), protein; (▲), fat.

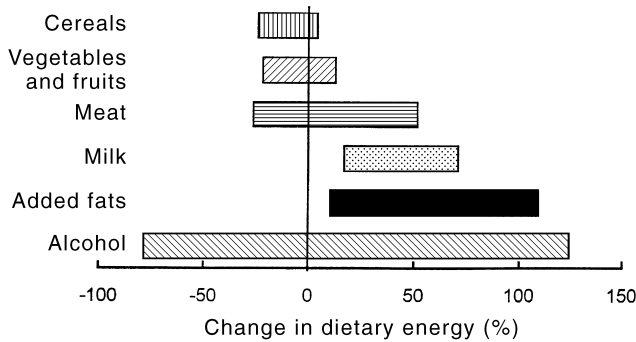


Figure 2. Changes in food sources of energy worldwide, 1960–90. The bars indicate the range of the percentage changes in dietary energy.<sup>2</sup>

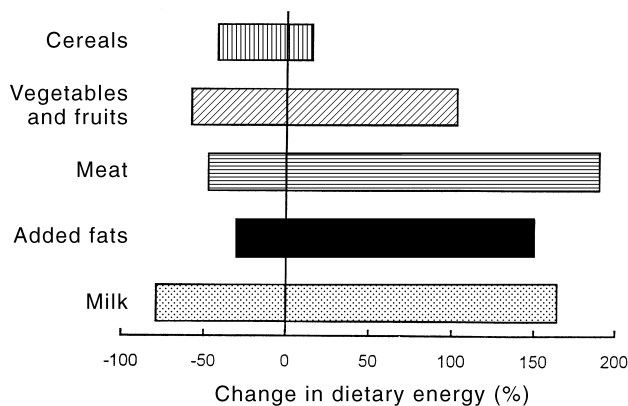


Figure 3. Changes in food sources of energy in Asia, 1960–90. The bars indicate the range of the percentage changes in dietary energy.<sup>2</sup>

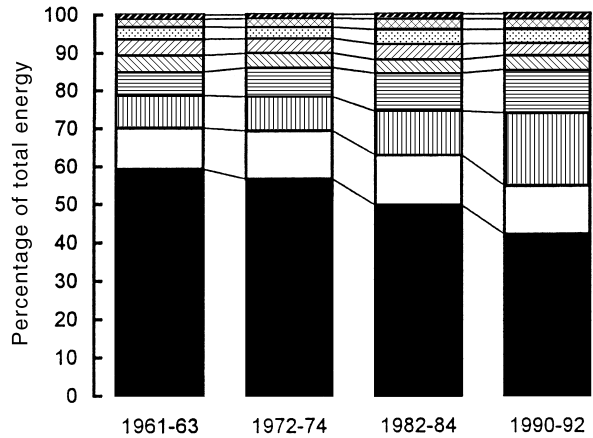


Figure 5. Changes in sources of calories in Malaysia between the 1960s and the 1990s.<sup>5,6</sup> (▨), Others; (▩), starchy roots; (▧), milk; (▦), vegetables and fruits; (▥), pulses, nuts and seeds; (▤), meat, fish and eggs; (▣), oils and fats; (▢), sweeteners; (■), cereals.

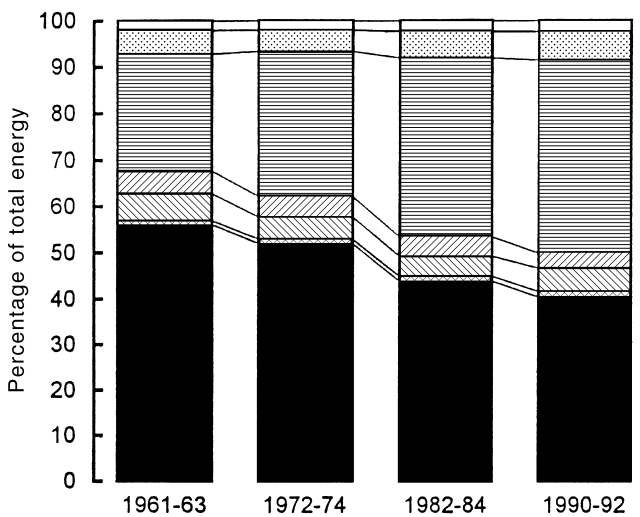
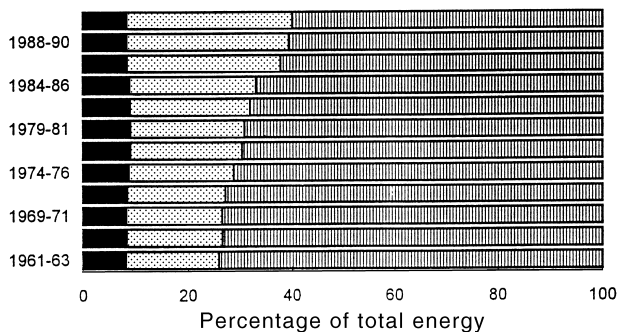


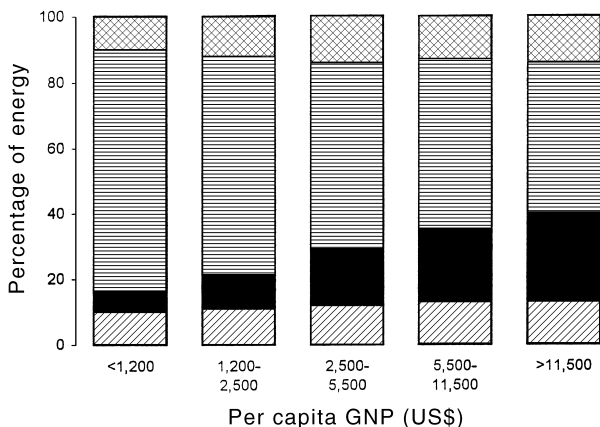
Figure 6. Changes in sources of protein in Malaysia, between the 1980s and the 1990s.<sup>5,6</sup> (□), Others; (▨), oils and fats; (▩), milk; (▧), meat, fish and eggs; (▦), vegetables and fruits; (▥), pulses, nuts and seeds; (▤), starchy roots; (■), cereals.

available energy over the past three decades, it can be seen that there was a definite decline in the proportion of energy from carbohydrates, while an increase in the percentage contribution of fat was observed (Fig. 7). These changes are particularly evident from the 1980s. No major change in the proportion of energy supplied by proteins was observed. However, there has been a definite shift towards an increased availability of animal protein, especially from fish, meat, milk and eggs.

These changes in food availability in Malaysia are consistent with generally observed patterns for nations with increased national wealth, as has been observed for Asian nations as well as globally. It has been shown that the main components of the diet tend to be related to a nation's relative affluence (Fig. 8). As countries develop economically, with increasing gross national product (GNP), there is a shift towards an 'affluent' diet that is characterised by an excess of energy-dense foods rich in fat, particularly animal fats, and a parallel decline in complex carbohydrate foods. Free sugars, particularly sucrose and glucose syrups, also form a much higher proportion of the total dietary carbohydrates in very affluent communities. The proportion of energy from starchy foods and animal fat is the most striking feature of the different dietary patterns of societies with different degrees of affluence. Because of the decline in consumption of foods of plant origin, such diets are correspondingly lower in fibre and other bioactive compounds found in foods of plant origin.<sup>1,2</sup>



**Figure 7.** Changes in composition of calories from protein, fat and carbohydrates in Malaysia, between the 1960s and 1990s.<sup>5,6</sup> (■), protein; (▨), fat; (▧), carbohydrate.



**Figure 8.** Changes in food sources of energy in relation to per capita gross national product.<sup>1</sup> (▨), Protein; (▧), carbohydrate plus other; (■), animal fat; (▩), vegetable fat.

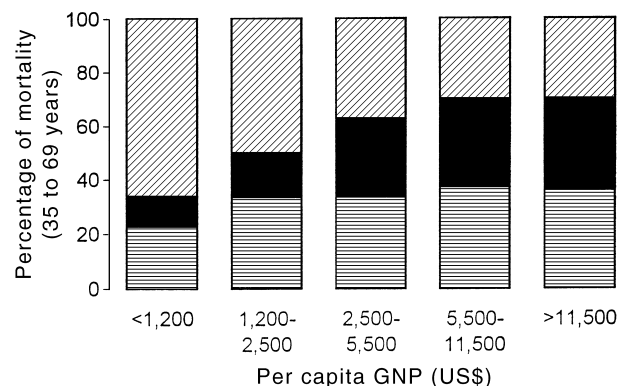
This pattern of dietary change has slowed down – and for some population subgroups it has even reversed – in some of the economically developed countries. For example, in some northern European countries and North America there is an indication of increasing consumption of vegetables and fruits and a somewhat decreasing consumption of red meat, fat, full-fat milk, dairy products and sugar in the form of sucrose. This beneficial shift has been attributed to the promotion of messages about nutrition and public health by health authorities in these countries.<sup>2</sup>

**Changes in disease pattern**

There are striking differences in the causes of death in developed and developing countries. In the latter, cardiovascular diseases and cancer accounted for some one-fifth (24%) of all deaths in 1980. Some 40% of all deaths in these countries are still attributed to infectious and parasitic diseases. In contrast, some 73% of the deaths in developed countries are attributed to the two non-communicable chronic diseases (Fig. 9).<sup>1</sup>

This pattern of causes of death in developing countries has, however, been rapidly changing. As a result of the shift towards the 'affluent' dietary pattern as well as other lifestyle changes, many developing countries are now faced with a new nutrition scenario. There have also been huge increases in the numbers of people moving from rural to urban communities, prompting striking changes in lifestyle. These countries are now faced with the twin problems of malnutrition: undernutrition among some segments of the communities and the problems of obesity and associated disorders in other groups. These disorders, frequently termed the diet-related chronic non-communicable diseases, include coronary heart disease, cerebrovascular disease, various cancers, diabetes, dental caries and osteoporosis.<sup>1,3</sup> Such diseases will pose a great stress on the health services of less affluent and developing communities which cannot afford such expenditures. Such changes have been even more marked in countries or communities undergoing rapid transitions between different cultural stages.

The increase in chronic diseases as countries become more affluent has been well documented. The association between increased national affluence and increasing rates of cardiovascular diseases and cancers in the population is depicted in Fig. 10.<sup>1</sup> The most marked increases in these



**Figure 9.** Proportion of deaths from chronic diseases for both sexes aged 35–69 in relation to per capita gross national product.<sup>1</sup> (▩), Other; (■), cancer; (▧), cardiovascular.

diseases have been observed for those countries with an average GNP of between US\$1200 to US\$5500.

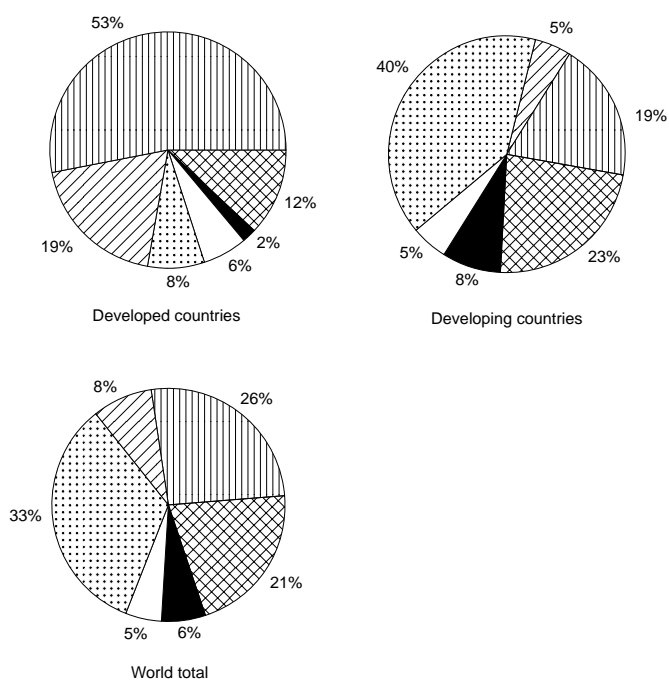
In Malaysia, as a result of the rapid rise in socio-economic development and increased affluence in the country, there has been a definite change in nutritional problems. The population is now faced with the other facet of the malnutrition problem, namely chronic diseases associated with excessive consumption 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. Increases in these diseases (i.e. hypertension, coronary heart disease and certain types of cancers) are evident from mortality data and epidemiologic data.

Mortality data for Peninsular Malaysia have shown that deaths due to diseases of the circulatory system and neoplasms have been on the rise since the 1960s (Fig. 11). How-

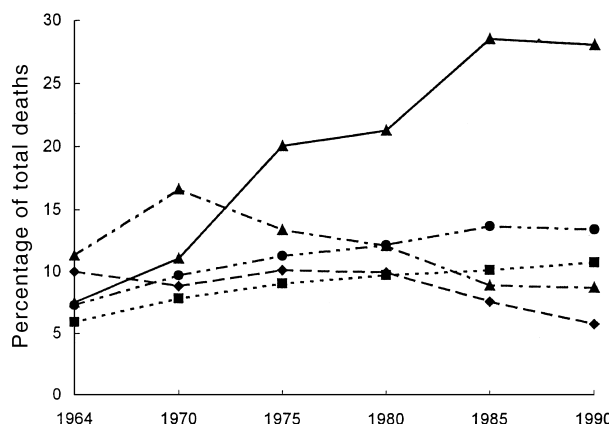
ever, deaths due to infectious and parasitic diseases, as well as conditions in the perinatal period, reduced in number, reflecting the improved health care facilities in the country over the past three decades. Within the category of 'diseases of the circulatory system', the two main causes of death are ischaemic heart disease and cerebrovascular disease. In addition to this is the alarming increase in prevalence of diabetes mellitus in the country.

Examination of the official statistics of medically certified and inspected mortality in Peninsular Malaysia for 1970, 1980 and 1990 show significant changes in the ranking of causes of death in the country for the three time periods (Table 1). In 1990, diseases of the circulatory system topped the list of 10 leading causes of death in the country. Ranking third in the list was deaths due to neoplasms, with the two major cancer sites being: (i) the digestive organs and peritoneum; and (ii) respiratory and intrathoracic organs. These two categories together constitute close to 40% of all medically certified deaths. The increased ranking of these two conditions over the years is evident from the table.

Studies into these diet-related chronic diseases are relatively recent undertakings in the country, commencing in the 1960s. Several epidemiological studies on risk factors of coronary heart disease have shown that hypercholesterolemia



**Figure 10.** Causes of death in 1980 in developed and developing countries and world total.<sup>1</sup> (▨), Diseases of the circulatory system; (▩), neoplasm; (▧), infectious and parasitic diseases; (□), injury and poisoning; (■), perinatal mortality; (⊠), all other causes.



**Figure 11.** Leading causes of medically certified and inspected deaths in Peninsular Malaysia, 1965-90.<sup>7</sup> (—▲—), Diseases of the circulatory system; (●), accidents, poisonings, etc.; (■), neoplasms; (▲), conditions in the perinatal period; (◆), infectious and parasitic diseases.

**Table 1.** Ranking of causes of medically certified and inspected deaths in Peninsular Malaysia, 1970-1990

Causes of death	1990		1980		1970	
	Total (%)	Ranking	Total (%)	Ranking	Total (%)	Ranking
Diseases of the circulatory system	28.1	1	21.3	1	11.1	3
Accidents, poisoning and violence	13.5	2	12.1	2	9.7	4
Neoplasms	10.8	3	9.8	6	7.8	6
All other diseases	10.6	4	7.7	7	6.3	8
Conditions of perinatal period	8.8	5	12.1	3	16.6	1
Symptomatic signs and ill-defined conditions	6.7	6	10.3	4	15.1	2
Infectious and parasitic diseases	5.8	7	10.0	5	8.8	5
Diseases of the respiratory system	4.0	8	6.3	8	6.0	9
Diseases of the genitourinary system	3.4	9	1.7	—	1.3	—
Congenital anomalies	3.2	10	2.3	9	1.6	—
Endocrine, nutritional and metabolism diseases	2.2	—	1.7	—	1.2	—
Diseases of the digestive system	1.4	—	2.2	10	5.1	10
Diseases of the nervous system	0.6	—	1.3	—	7.4	7

Source: Tabulated from reports of the Department of Statistics (1973, 1984, 1993).



was a problem among the more affluent segments of the population, whereas the rural population had lower levels of serum cholesterol. The prevalence of several other risk factors such as obesity, hypertension, high blood glucose and smoking have been studied for various population groups in the country. The overall prevalence for overweight is approximately 29% and that for obesity is 12%. The combined prevalence of overweight plus obesity ranged from 26 to 53%, with an overall mean of 39%. The problem appears to be also prevalent among lower income urban adults. Even among rural communities, the problem of overweight appears to be on the increase. Although the sample size of some of these studies was rather small, these findings do indicate some cause for concern and the need for more serious studies and interventions.<sup>4</sup>

### **National Plan of Action on Nutrition**

Following the International Conference on Nutrition jointly organised by the FAO and WHO in December 1992, a National Coordinating Committee on Food and Nutrition (NCCFN) was formed and headed by the Division of Primary Health Care and Family Health, Ministry of Health Malaysia. The Committee comprised representatives from some 20 departments and agencies related directly or indirectly to the promotion of the nutritional wellbeing of Malaysians. Through this inter-sectoral collaborative effort, a National Plan of Action on Nutrition (NPAN) for Malaysia was prepared. It is hoped that most of the activities recommended could be implemented in the 7th Malaysia Plan period (1996–2000).

The NPAN covers all aspects of food and nutrition, with programmes and activities in nine thrust areas, including improving household food security, protecting consumers through improved food quality and safety, caring for the socio-economically disadvantaged and nutritionally vulnerable, and promoting appropriate diets and healthy lifestyles. Many of these programmes are in fact ongoing activities of several ministries. It is hoped that with the NPAN, these programmes will be more coordinated in implementation. In view of the changed nutrition scenario in the country, intervention policies and programmes have been geared towards tackling the twin facets of the malnutrition problem. To further facilitate implementation of specific activities, three Technical Working Groups (TWG) have been formed: that is, TWG on Research, Training and Dietary Guidelines.

### **Nutrition and the Healthy Lifestyle Programme**

In recognition of the increasing trend of non-communicable diseases that has taken place in the country, the Ministry of Health launched a comprehensive campaign for the promotion of healthy lifestyles among Malaysians. The 'Healthy Lifestyle Campaign' was launched in May 1991, with its first thematic campaign relating to cardiovascular diseases. For six consecutive years, one thematic campaign per year was carried out: namely, sexually transmitted diseases (1992), food safety (1993), childhood diseases (1994), cancers (1995) and diabetes mellitus (1996). These programmes focused on creating awareness and educating the public with regards to these diseases. In almost all of the campaigns in the past 5 years, a great deal of emphasis has been given to

practising a healthy dietary pattern and taking up regular exercise programmes.

It is important that these promotional activities and programmes continue to be given focus and the required impetus to achieve the desired results. The Ministry of Health Malaysia had therefore planned another series of activities to be carried under the second phase of the Healthy Lifestyle Campaigns (1997–2002). In view of the importance of the involvement of diet and nutrition in the causation and prevention of chronic diseases, the theme for the first year of this phase was 'Healthy Eating': it was launched by the Ministry in January 1997.

### ***Prime messages and target groups***

The Healthy Eating Campaign focuses on four main topics: dietary practices, body weight, food and nutrition labelling, and food hygiene. These topics and the messages that are to be disseminated to the consumer are as follows: adoption of desirable dietary practices; make dietary modifications; maintenance of a desirable body weight; understanding food and nutrition labelling; and provision of healthy food at food outlets. The food pyramid is being introduced for the first time in the country. It is based on four layers and five food groups, with serving sizes appropriate for local populations.

The Campaign has been targeted to most sub-groups of the community including: primary school children (7–12 years); adolescents (13–18 years); adults, including the working population and housewives; the elderly; and food handlers (including hawkers in food courts, restaurants, hotels and canteens). With regard to food handlers, messages to encourage them to adopt healthier food handling, preparation and storage practices have been prepared. Emphasis is also given to the personal hygiene of the food handlers. This is a particularly difficult group to tackle but nevertheless very important as many Malaysians eat out and healthier choices must become available to them.

### ***Approaches and evaluation***

The Ministry of Health has identified various organisations for collaboration in order to disseminate the Healthy Eating messages. These include working closely with Radio and Television Malaysia (RTM) and other radio and television stations in order to air messages on healthy eating. There is now available much more air time for nutrition promotion, including opportunities for live talk-shows. There is continued collaboration with the Education Ministry in strengthening activities in schools. Existing collaboration with the Malaysian Agriculture Research and Development Institute (MARDI) and the Federal Agriculture Marketing Authority (FAMA) is also strengthened. Emphasis shall also be given to a variety of workplaces to provide healthier food choices in canteens. The professional bodies in the country (i.e. the Nutrition Society of Malaysia, Malaysian Dietitian Association, Malaysian Diabetes Association and MASSO) have been invited to participate and contribute to the planned activities.

A multi-media approach through the use of the following has been undertaken: TV; radio; cinema advertising; billboards; bus panel advertisements; the publication of advertorials, feature articles and quizzes in the local vernacular newspapers and magazines on healthy eating; and messages

on Ministry of Health vehicles. The printed matter to be produced by the Health Education Division includes posters, booklets and leaflets. The leaflets and booklets give detailed messages and instructions on food choice, food selection and preparation, the food pyramid, and weight measurements, and focus on several selected nutrients. Several non-print media to be utilised include trailers, documentary films, interactive computer quizzes, TV programmes and jingles, and radio commercials.

A knowledge, attitude and practice (KAP) study of food and nutrition among the five target groups has been carried out to obtain baseline data in the first year of dissemination of the messages on healthy eating throughout the country. These data can be used to determine the effectiveness of the programme when the study is repeated several years later. A separate set of questionnaires for each of the five groups was used. Some 20 000 individuals have been interviewed in this nationwide study conducted with the collaboration of all state health departments.

### **Challenges to implementation**

The ultimate strategy towards achieving a healthy nation is the promotion of a healthy lifestyle, including promoting healthy eating habits and maintaining a desirable dietary pattern. It is clear that nutrition education for the community is the long-term solution to the nutritional problems encountered by Malaysians. All efforts should therefore be made towards inculcating a culture of healthy eating among Malaysians. It is particularly important for young children to adopt healthy food habits to start the prevention of chronic diseases as early as possible. It is vital that the younger generation of Malaysians be put on the right track and be in good health to inherit the nation. The implementation of the healthy lifestyle programme has, therefore, been given a high priority in Malaysia. The implementation of the programme, however, is a challenge.

Nutrition education activities have been going on for many years in Malaysia. These programmes have contributed towards uplifting the health and nutritional status of communities. We cannot, however, continue to use these same strategies. Because the nutrition scene has changed dramatically over the years, nutrition education strategies will need to be re-structured and targeted towards the changed scenerio. It should also be considered that the socio-economic status of the Malaysian is quite different from that of three decades ago. We will need to re-examine the present nutrition education strategies to determine if they will be effective in bringing about the desired changes. Various aspects need to be examined, including the appropriateness of nutrition education messages and educational materials; the employment of appropriate technologies for dissemination to the community and the availability of such technologies to all levels of the community; education approaches; and the various avenues appropriate to specific target groups.

Many nutritionists must have felt frustrated at the poor turn outs for their talks and lecture sessions. Many dieticians must have felt frustrated at the lack of compliance by their diabetic or overweight patients. The consumer has certainly become more aware of nutrition through various programmes and exposures. However, they have not translated their knowledge to the desired actions and practices. It is clear that

much of our efforts concentrating on delivering knowledge have not resulted in behavioural changes. Particularly for dietary practices, behaviour changes are complicated processes involving a chain of events. The consumer must first increase awareness, motivation and attitudes about the role of nutrition in health and disease. He or she should then change the food preparation methods as well as kinds, types and amounts of foods eaten. The consumer may even have to change sensory perceptions and alter economic and time commitments.

It has often been said that dietary behaviour changes are difficult. We are told that it is difficult to change food habits. This is, of course, not true. Dramatic changes in lifestyle and eating habits have taken place among many societies in Asia. An examination of the dietary pattern in the initial part of this paper has showed that many communities in Asia have changed or are in the process of changing their food consumption pattern to that of a more 'affluent' type. The health and nutrition worker, on the other hand, is having little success in convincing the consumer to adopt a healthier eating pattern.

The health and nutrition worker will have to bear in mind that his/her messages are in competition with a whole barrage of food and nutrition information to which the consumer has access: in magazines, books and newspapers, on radio and television and now on the Internet. These may serve as potential and valuable means of nutrition education, but they often serve to confuse, misguide, and/or to misinform the consumer. Sometimes these messages are promoted by certain quarters that use sensational interpretations, shock tactics, and descriptions of miracle cures and revolutionary 'break-throughs'. The net effect of exposure to these various information sources may be an irrational view of nutrition in relation to health. A misunderstanding of the role of diet in health maintenance may result and, in consequence, a food fad may arise. This situation has caused considerable concern to health professionals.

The public are certainly becoming more aware of the importance of proper diet and nutrition in the prevention and control of diseases. However, their understanding of nutrition is often rather shallow and incorrect. They have heard of cholesterol, but do not really know the food sources of this lipid and that dietary sources are not the main determinant of blood cholesterol levels. Some consumers believe in extreme nutrition to the extent that many foods are avoided. The public is also confused. This may be because the nutrition scientists themselves do not agree on several aspects of the role of diet in health and disease. This may be because there is still an incomplete understanding of the factors contributing to chronic diet-related diseases, the role of diet in relation to other factors, and the influence of specific components within a total diet. For example, although there is clear evidence demonstrating that an increase in serum cholesterol is related to saturated fat intake, not all saturated fatty acids have the same effect on serum cholesterol.

The public wants more information on nutrition. They are actively phoning live talk-shows on radio and TV to seek answers to many of their doubts and worries. They attend public forums and ask many questions. The public needs more avenues for obtaining correct nutrition information. Health and nutrition workers need to provide more opportu-

nities to enable the public to have access to accurate nutrition information, such as providing walk-in 'clinics'. Health and nutrition workers need to go to the community.

The nutritionist finds it extremely difficult to promote guidelines on healthy eating. The consumer is surrounded by a huge variety of health foods that are supposed to prevent all diseases and cure all ills. These foods appeal to the consumer as they promise to provide quick solutions to being overweight or having a high blood cholesterol problem. The health and nutrition worker, however, is unable to make many of these promises as scientific evidence does not support such claims. Health workers promote healthy eating and the adoption of an overall healthy lifestyle. They find that they are losing to the irresponsible, misleading but powerful messages of some of these promoters of 'health foods'.

The challenge is to be equipped to implement the nutrition education programmes. The training of nutritionists to carry out these activities as well as other nutrition intervention programmes needs to be given serious consideration and proper planning. This includes not only the number of nutritionists graduating from universities but more importantly, their deployment to appropriate sectors, both private and public. It is imperative that agencies and ministries other than the Ministry of Health have adequate posts for nutritionists. The continuing education of existing staff also needs to be adequately addressed by providing opportunities for higher degrees and participation in seminars and conferences, both locally and abroad.

### Conclusion

The changes in dietary patterns of many countries in the Asia Pacific region is a cause for concern. Of particular concern is the increase in consumption of fats and oils, and refined carbohydrates as well as the decreased intake of complex carbohydrates. Changes in meal patterns are also evident: more families eat out, busy executives skip meals, the younger generation skip breakfast and rely too much on fast foods. Many Malaysians have the mistaken belief that the taking of vitamin and mineral supplements can make up for the lack of these nutrients in their daily diets. Nutritionists are also concerned with the continuing decline in breastfeeding among Malaysian mothers. All these changes have brought about undesirable effects with increases in diet-related chronic diseases in these countries.

It is clear that the solution to a healthy nation is the adoption of a healthy eating pattern. Nutrition education for the community is the long-term solution to the nutritional problems encountered by the population. Healthy eating should become more than simply a catchy phrase; it has to be a culture. Clear guidelines need to be given to communities to encourage them to adopt healthy eating habits and patterns.

The challenge to all health workers is to implement these healthy eating dietary guidelines. There is a need to examine the strategies for nutrition education to ensure more effective dissemination of information. The challenge is to determine how best to promote healthy eating within the present scenario of rapid urbanisation, 'western' dietary pattern influence, a whole barrage of convenience and 'health' foods, and nutrition misinformation. It is undoubtedly a daunting task but persistence in continuing healthy lifestyle programmes is required.

There has never been more prominence given to nutrition activities in the country than in the last 5 years, coinciding with the convening of the FAO/WHO International Conference on Nutrition in 1992. Nutritionists and dieticians in the country should take up the challenge and contribute actively in all ways to promoting healthy eating among communities. They should participate in the implementation of the recommendations and activities of the National Plan of Action for Nutrition. They should practise and promote nutrition science based on sound scientific principles rather than on anecdotes and hearsay.

Lifestyle changes will continue in countries in the region. Countries will continue their push towards socio-economic development. It has often been said that increased morbidity and mortality due to diet-related chronic diseases is not a necessary price to pay for development. But how many developing countries are able to avoid treading the same path? Several countries in the region are developing rapidly and are not yet burdened with these diseases; for example, Laos, Vietnam and Myanmar. Can these countries learn from the mistakes of others and arrest the dramatic lifestyle and dietary changes?

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