

Invited editorial

Nutritional research in Malaysia

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The nutritional status of a country is closely associated with the gross national product (GNP)¹. An increasing GNP gives rise to improved nutritional status. As a country that is undergoing a rapid and progressive change from an agrarian to an industrialized economy, Malaysia is experiencing a shift in problems associated with undernutrition to that of overnutrition. Previously, due to the limited comprehensive data available on the nutritional status of the Malaysian population, research concentrated on the determination and evaluation of nutritional status generally through such indirect health indicators as life-expectancy at birth and mortality rates of infants, toddlers and mothers². The results obtained over the period from 1957 to 1982 showed a marked improvement in mortality rates for the groups concerned, hence better health. It is not surprising that the GNP also showed a remarkable improvement during this period. However, considerable variations linked to local economic factors were observed. The richer states registered a higher life expectancy than the poorer states. There were also different mortality rates between different communities and in various parts of the country. Studies using assessments of nutrient intakes from food consumption and anthropometric indicators provided data on vitamin A deficiency³, anaemia in children and women^{4,5}, prevalence of endemic goitre^{6,7}. Acute malnutrition and severe chronic undernutrition were minimal, but chronic undernutrition and underweight were rampant; in communities with a higher income health status was better. Apart from providing community health indicators, studies on dietary patterns and food consumption carried out in recent years has also acted as a basis for continuing research^{8,9} and for the nutritional research of Malaysia in the future.

As Malaysia continues to move progressively towards being a more developed industrialized nation, nutritional problems associated with those of the more affluent and developed countries of the North and the emerging 'tiger economies' would obviously be a major research target of nutritionists. In addition to the evidence from indirect health and nutrition indicators, such conditions as obesity, non-insulin-dependent diabetes mellitus (NIDDM), cardiovascular disease and cancers of the lung, breast and colon are indicative of affluence and also of changing lifestyles and dietary habits. High-fibre, 'natural', carbohydrate rich dietary intake is giving way to more processed food, particularly fast food, to food

that is rich in fat, salt and sugar, and to increased alcohol consumption.

The impact of urbanization on certain communities in selected towns, rural settlements and remote rural areas has been carried out using NIDDM and endemic goitre as indicators. The prevalence of NIDDM in recent years is closely correlated with the more affluent and modern lifestyles of the Malaysian population in general¹⁰. It should be stressed that studies on aspects of under-nourishment and deficiencies in the less fortunate segments of the Malaysian population, especially the remote and rural communities, the poor and the lower income groups, are still being carried out. The prevalence of endemic goitre in some parts of Peninsular Malaysia and Sarawak bears testimony to cassava being still the staple diet of the communities involved and an important source of goitrogens¹¹.

The economy and Malaysia's primary produce continues to influence the trend of nutritional research. The overt economic implication of the Tropical Palm Oil labelling policy by the United States government probably almost singlehandedly shaped the present trend in nutritional research. An integrated, concerted approach has been initiated to research on the relationship between palm oil and its by-products to health and nutrition. Studies comparing the effects of palm oil, compared to those of other types of vegetable oil, on lipid profiles in man^{12,13} have been carried out. The effect of palm oil and its by-products, particularly tocopherols and tocotrienols, on serum lipoproteins, free radical formation and chemical carcinogenesis in humans and animals have been reported. Studies have shown that tocotrienols purified from palm oil could reduce the severity of chemical carcinogenesis in the rat^{14,15}. The effect of palm oil on atherosclerosis and its relationship to lipid profile and lipid peroxidation is being studied by several groups. Similarly, the effect of tocotrienols on protein glycosylation in diabetics, muscle contractility in thyroid disorders and their relationship to peroxidation are being keenly investigated with support from local palm oil research funds.

It may well be that Malaysia can count itself well off,

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for example in terms of information. As more information is revealed through the publication of numerous scientific reports, how could this knowledge be made useful to the Malaysian population in general, and to medical practitioners and other scientists and professions concerned with nutrition in particular? The ideal solution would be a continuous, integrated effort involving researchers, the relevant authorities and the mass media in different educational activities that would make good nutritional habits and healthy lifestyles attractive to the public as a way towards a better quality of life. Ultimately, what nutritional researchers have been working for is Malaysians who are healthy, wealthy and wise.

- 1 Grant JP. The state of the world's children 1984. UNICEF, New York, 1985; pp 112-117.
- 2 Siong TE, Khor GL. Overview of country nutritional status. Proceedings of the 1st Scientific Conference, Malaysian Nutrition Society, 1986; pp 7-24.
- 3 Chong YH, Tee ES, Ng TKW. Status of community nutrition in poverty kampongs. Bulletin no. 22, Institute for Medical Research Services, Kuala Lumpur, 1984.
- 4 Anderson AJU. Nutrition of Iban children of middle Mukah river. Report of the Sarawak Medical Services, Sarawak, 1976.
- 5 Kandiah M, Lee M, Ng TKW, Chong YH. Malnutrition in malaria endemic villages of Bengkoka Peninsula. *J Trop Paed* 1984;30:23-29.
- 6 Tan YK. Endemic goitre in the state of Sarawak, Malaysia. In: Proceedings of the Workshop on Cassava Toxicity and Thyroid: Research and Public Health Issues, 1982, Ottawa, Canada; F Delange and R Ahluwalia (eds), pp 64-68.
- 7 Osman A, Khalid BAK, Tan TT, Wu LL, Ng ML. Protein energy malnutrition, thyroid hormones and goitre among Malaysian Aborigines and Malays. *Asia Pacific J Clin Nutr* 1992;1:13-20.
- 8 Osman A, Shamsuddin Z, Khalid BAK. Socioeconomic, social behaviour and dietary patterns among Malaysian aborigines and rural native Malays. *Med J Malaysia* 1991; 46(3):221-229.
- 9 Osman A, Tan TT, Sakinah SO, Wu LL, Wan Nazaimoon WM, Ng ML, Khalid BAK. The relationship between malnutrition and endocrine disorders among Malays and Aborigines in Malaysia. *Pascasidang Kolokium Perubatan Ke-3, 1992*;279-289.
- 10 Osman A, Khalid BAK, Tan TT, Wu LL, Sakinah SO, Ng ML. Prevalence of NIDDM and impaired glucose tolerance in Aborigines and Malays in Malaysia and their relationship to sociodemographic, health and nutritional factors. *Diabetes Care* 1993; 16(1):68-74.
- 11 Osman BA, Ng ML, Bakar AA and Khalid BAK. The effect of cassava leaf intake on thyroid hormone and urinary iodine. *East Africa Med J* 1993;70(5):302-303.
- 12 Marzuki A, Arshad F, Razak TA, Jaarin K. Influence of dietary fat on plasma lipid profiles of Malaysian adolescents. *Am J Clin Nutr* 1991;53:1010S-1014S.
- 13 Ng TKW, Hassan K, Lim JB, Lye MS, Ishak R. Nonhypercholesterolemic effects of a palm-oil diet in Malaysian volunteers. *Am J Clin Nutr* 1991;53:1015S-1020S.
- 14 Ngah WZW, Jarlen Z, San MM, Marzuki A, Top AGM, Shamaan NA, Khalid BAK. Effect of tocotrienols on hepatocarcinogenesis induced by 2-acetylaminofluorene in rats. *Am J Clin Nutr* 1991;53:1076S-1081S.
- 15 Rahmat A, Ngah WZW, Shamaan NA, Top AGM, Khalid BAK. Long-term administration of tocotrienols and tumor-marker enzyme activities during hepatocarcinogenesis in rats. *Nutrition* 1993; 9(3): (In press).