37 Our neighbours

Summary

The nutritional problems of developing countries, for example, protein-energy malnutrition, nutritional anaemia, endemic goitre, and vitamin A deficiency are prevalent in those countries of South-east Asia that are the most populated, as well as Papua New Guinea. Diseases of affluence, such as diabetes, coronary heart disease, and obesity, are beginning to appear in Singapore, Malaysia, and the Pacific Island of Nauru. Food toxicants in South-east Asia, such as mycotoxins (aflatoxins) and nitrosamines, may also be a problem.

Introduction

In the South-east Asian countries of Indonesia, the Philippines, Thailand, Malaysia and Singapore, and the Pacific region, nutritional problems of both under-nutrition and affluence are found.

Population

The populations of selected countries in South-east Asia and Australia are summarised in table 37.1. The most densely populated area is Singapore, followed by the Philippines, Thailand and Malaysia. Approximately 45 per cent of the population in Indonesia and Thailand are under 15 years of age.

Nutritional problems

The nutritional problems of the developing countries include protein-energy malnutrition, nutritional anaemia, and xerophthalmia (related to vitamin A deficiency), endemic goitre, food-borne infection, and nutritionally related cancers. The problems of affluent societies, coronary heart disease, obesity, diabetes mellitus, large bowel cancer, and dental caries are emerging principally in Singapore and Malaysia.

Vulnerable: 'at risk' or susceptible. For example, infants are susceptible to protein deficiency because of their increased requirements for growth.

Papua New Guinea

Nutritionally, Papua New Guinea is vulnerable* because

Table 37.1 Population in selected countries in South-east Asian region and Australia

Country	*Population (1984)*	*Population density per square kilometre (1984)*
Papua New Guinea	3 601 000	8
Indonesia	158 895 000	84
Thailand	50 396 000	98
Malaysia	15 204 000	46
Singapore	2 529 000	4353
China	1 051 551 000	110
Philippines	53 351 000	178
Australia	15 544 000	2

Figure 37.1 A Papua New Guinea mother and her two-year-old child with protein-energy malnutrition of the kwashiorkor kind. Note the misery, the swelling of the lower limbs (oedema), and the 'flaky paint' skin.

food variety is limited, there is increased dependence on imported food, and the traditional village support system is under threat through cash cropping and urbanisation. The nutrition problem is not simply one of production, but also of knowledge about and attitudes to food.

In children under five years of age there is a risk of protein-energy malnutrition because tubers, principally sweet potatoes (which are low in protein and energy) are the main crop. Under-nutrition and kwashiorkor constitute the commonest forms of protein-energy malnutrition. Masrasmus is also present; it affects 1 per cent of children under five. Protein-energy malnutrition is often accompanied by anaemia and occasionally by evidence of vitamin A deficiency in impaired vision. Other vitamin deficiencies are uncommon.

Some of the factors affecting malnutrition in Papua New Guinea include infection, distribution of food in the family, childbirth spacing, chewing habit (of betel nut and bubble gum), climate, altitude, cash cropping, urbanisation, and food advertising. The effect of each of these factors can be reduced, with the exception of climatic conditions.

In solving the protein-energy malnutrition problems, care must be taken to avoid the over-nutrition problems of Western society. Already in certain coastal villages and urban areas, where there is access to imported highly-refined non-traditional foods, obesity and diabetes mellitus are emerging as problems.

Indonesia

Indonesia has problems of high fertility, premature death, and poverty. The main nutrition problems are protein-energy malnutrition, nutritional anaemia and endemic goitre*, predominantly affecting the under fives, and pregnant and lactating mothers. A study conducted in East Java indicated that:

1. hypovitaminosis* is a public health problem;
2. infants below one year of age did not have clinical signs of

Goitre: enlargement of the thyroid gland due to a deficiency of iodine.

Hypovitaminosis: sub-clinical signs of vitamin deficiency, low levels of vitamins in the blood.

xerophthalmia but other signs of impaired vision were evident in 0.5 per cent of 3-year-olds;
3. angular stomatitis* occurred frequently amongst the mothers; signs of protein deficiency were found in 4 to 7 per cent of infants;
4. the overall prevalence of goitre was 64 per cent in mothers, 4 per cent in toddlers, and 53 per cent among adolescents; and
5. iron deficiency anaemia was prevalent in all age groups.
These findings are similar to those found in the Philippines.

Angular stomatitis: inflammation of the mouth and tongue, which can occur in riboflavin deficiency.

Liver cancer is the most common cancer found in Indonesia and it is likely that it is caused by food toxins. Chronic hepatitis* can result in cirrhosis*, which is thought to make the liver more vulnerable to the action of food toxins such as aflatoxins and nitrosamines.

Chronic hepatitis: long-standing inflammation of the liver.

Cirrhosis: condition of the liver in which liver cell destruction and regeneration, as well as scarring, co-exist.

Recently, government and private agencies have developed a variety of projects and programmes aimed at community nutrition throughout Indonesia.

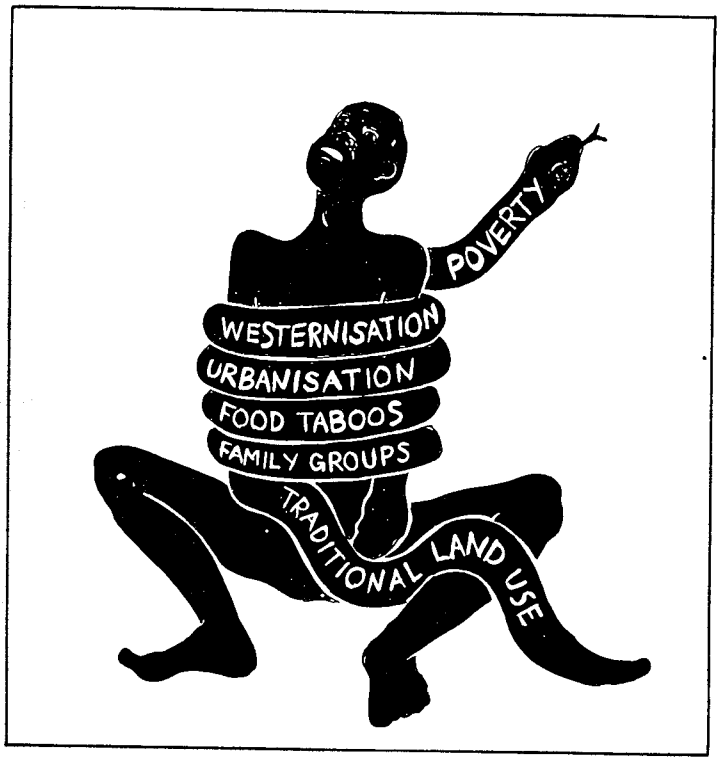
Philippines

In 1974, the National Nutrition Council was created to implement an integrated national programme on nutrition called the Philippine Nutrition Programme (PNP). This programme aims to:
1. provide rural families with basic health and nutrition services; and
2. develop self-reliance among the people.

The nutrition problem in the Philippines is one of undernutrition, which affects millions of people, particularly infants, preschool and school children, pregnant women, and nursing mothers. It has been estimated that 3.5 million children under 6 years old are either moderately or severely malnourished, and approximately the same number of school children.

The most common forms of malnutrition include:
1. protein-energy malnutrition; kwashiorkor and marasmus caused by an inadequate intake of protein and/or energy;
2. nutritional anaemia due to iron deficiency;
3. xerophthalmia, an eye disease due to a lack of vitamin A; untreated xerophthalmia can lead to permanent blindness;
4. goitre, a disease of the thyroid glands caused by a deficiency of iodine; it is widespread throughout the Philippines, especially in isolated mountainous and coastal regions.

According to a nutrition survey in nine regions from 1958 to 1969 conducted by the government, endemic goitre affects 4 per cent of the population. However, a survey conducted from 1978 to 1982 shows the figure falling to 3.1 per cent of the population. A goitre control programme has been launched by the Department of Health, to train health personnel in the early detection and control of endemic goitre. Iodised salt has been distributed to endemic regions in conjunction with a nutrition education programme stressing the importance of iodine-rich foods and iodised salt.



The causes of malnutrition in the Philippines have been attributed to:
1. poverty;
2. mal-distribution of food within the family and among the various regions;
3. inadequate food availability at both household and farm levels;
4. large families;
5. lack of information on correct food habits and poor dietary practices; and
6. infectious diseases.

Because of the magnitude of the problem, projects and programmes have been undertaken to protect and improve the nutritional status of the population and to increase economic productivity.

Thailand

The nutritional problems in Thailand are similar to those in Papua New Guinea, the Philippines and Indonesia. In a study of the health conditions of the villagers under 9 years of age in north-east Thailand it was found that:
1. clinical manifestations of anaemia and riboflavin deficiency were present;
2. incidence of parasitic infection was high; and
3. the common foods consumed included glutinous rice, fermented fish, fish and vegetables.

Meat such as pork, beef and chicken were consumed only by high income groups and eggs and milk were not common foods. Protein-energy malnutrition and nutritional anaemia are the major nutritional problems in Thailand.

Malaysia and Singapore

Malaysia now has a prosperous developing economy. Its nutritional problems vary from malnutritional in the remote rural areas to over-nutrition in the cities, where the nutritional problems and diseases now resemble those of affluent societies. For example, the frequency of coronary heart disease is increasing amongst young urban dwellers. The prevalence of hyperlipidaemia* is moderately high in apparently healthy city dwellers compared with rural dwellers.

Hyperlipidaemia: the presence of an excessive amount of lipids in the blood.

Food consumption patterns have changed and the proportion of energy obtained from carbohydrates declines with increasing income. Consumption of staple foods, for example, wheat and rice, has decreased but consumption of sugar and sugar-sweetened food has increased. Consumption of animal fats, milk and fish has increased.

Among the affluent classes of Malaysia the increase in fat and energy may have potentially harmful results: more cardiovascular disease, high blood pressure, diabetes and obesity.

Toxicants in food. In South-East Asia, two groups of cancer-producing substances have been shown to be a problem:

1. Mycotoxins: aflatoxins produced by a common species of mould *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxins have been found to cause liver tumours in a wide variety of animals. In Malaysia, groundnut oil, groundnuts and other groundnut products have been found to be contaminated with aflatoxins (see chapter 25, Natural toxicants in food).
2. Nitrosamines: comprise a group of tumour-inducing compounds that may play a role in human gastric and oesophageal cancer. Nitrosamines have been detected at significant levels in salted fish and fermented fish products.

At present the risks to human health constituted by aflatoxins and nitrosamines are not known, but it is known that South-East Asians are particularly prone to liver and nasopharyngeal cancer.

The causes of nutrition problems in Singapore and Malaysia are multiple and complex. There is a need to maintain continued nutritional surveillance on representative rural and urban communities to observe trends in nutritional health.

Nauru

Nauru is situated in the central Pacific, and is one of its most isolated islands. The population is approximately 7500: 50 per cent are Nauruans, 25 per cent Gilbert and Ellis Islanders, 12 per cent Chinese and 13 per cent Australians. The Nauruans have one of the highest per capita incomes in the

world due to the mining and export of phosphates—it is, therefore, a very affluent society. A considerable amount of urbanisation has occurred during the past decade.

Of individuals aged 15 years and over, 34 per cent suffer from diabetes. This high prevalence rate appears to be related to a number of factors, including genetics and urbanisation. The mean weight of the diabetics is significantly greater than that of the normal population. The energy intake is at least twice that considered optimal by Western nutritional standards. The Westernisation of life-style on the island has also brought with it physical inactivity.

Further reading

WOOD-BRADLEY, R., FLINT, D.M., and WAHLQVIST, M.L. 'Food and nutrition in an independent Papua-New Guinea.' *Search*, 1980, 11:73.

Questions

1. Identify the nutritional problems that are prevalent in Australia.
(a) What are the causes of the problems you have identified?
(b) Are the nutritional problems in Australia different to those which are found in our neighbour countries.
2. What are the staple foods in each of the following countries?
(a) Papua New Guinea
(b) Malaysia
(c) Singapore
(d) Nauru
(e) Philippines
(f) Australia

FOOD & NUTRITION IN AUSTRALIA

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Nelson

First published 1981
Second edition 1982
Reprinted 1983
Reprinted 1984 twice
Reprinted 1985
Reprinted 1986
Third edition 1988
Reprinted 1989
Reprinted 1992

Thomas Nelson Australia
102 Dodds Street South Melbourne 3205

Cover design by Green Poles Design
Illustrated by Neville Todd
Photographs on pages 20, 27, 28, 37, 46 and 66 by Peter Wilson
Set in 10/11 Garamond by SRM Productions, Malaysia
Printed in Singapore by
Kyodo Printing Co. Pte Ltd

National Library of Australia
Cataloguing-in-Publication Data

Food and nutrition in Australia.

3rd rev. ed.
ISBN 0 17 007343 2.

1. Food. 2. Nutrition. 3. Food — Social aspects.
— Australia. I. Wahlqvist, Mark L. II. Briggs,
David R., 1944 – . III. Todd, Neville.

641'.0994

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