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The Nutritional Transition and Diet-Related Chronic Diseases in Asia: Implications for Prevention

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The nutritional transition currently occurring in Asia is one facet of a more general demographic/nutritional/epidemiological transition that accompanies development and urbanization. The nutritional transition is marked by a shift away from relatively monotonous diets of varying nutritional quality toward an industrialized diet that is usually more varied, includes more preprocessed food, more food of animal origin, more added sugar and fat, and often more alcohol. This is accompanied by shift in the structure of occupations and leisure toward reduced physical activity, and leads to a rapid increase in the numbers of overweight and obese.

The accompanying epidemiological transition is marked by a shift away from endemic deficiency and infectious diseases toward chronic diseases such as obesity, adult-onset diabetes, hypertension, stroke, hyperlipidaemia, coronary heart disease, and cancer.

Purpose of This Study

The authors begin by examining the nutritional and epidemiological aspects of this transition for Asia, using four country groupings by income level (lower-low, upper-low, middle, and high), and a fifth grouping for small islands. Case studies of the costs of the key diet-related chronic diseases were undertaken for China and Sri Lanka.

What Dietary Factors Contribute to Chronic Disease and How Have Diets Changed in Asia?

The authors examine the dietary and related factors that contribute to chronic disease in Asia. Given the rapidity of economic growth in many countries, current adults may have increased susceptibility to chronic diseases, since their dietary and activity patterns have vastly changed from when they were young. Also, as children, these same adults faced fetal and early childhood insults related to inadequate nutrition.

The study uses country-level food disappearance data to examine diet changes in the five country groupings. These confirm the broad patterns discussed above, although with some important variations. This variability is related to traditional diets, which in Korea (high-income) contain few dairy products, but which in India (lower-low income) contain relatively high levels of dairy products. Of concern is the fact that although food disappearance data indicate increased availability of vegetables and fruit, this is not confirmed by food consumption data in the two case-study countries.

A strategy that views the elimination of communicable diseases as the only way to improve the health of the poor will miss important causes of poor health and survival.

What Are the Costs of the Nutritional Transition?

The next section examines the epidemiological transition in Asia, and estimates for two countries the associated economic and human costs. The general trends suggest that at an early stage in the epidemiological transition, even when the proportion of deaths due to infectious and malnutrition diseases remain high, hemorrhagic stroke is an important cause of death. Hypertension and stroke continue to increase with development, unless countries have adequate resources to contain rates of hypertension. At a later stage of the transition, the full range of cardiovascular diseases emerges as the primary cause of chronic disease deaths. Finally, as incomes continue to rise, deaths from various cancers increase in absolute and relative importance.

Obesity is now a major public health problem in Asia. There is evidence that the international standards used to delineate overweight and obesity may not be appropriate for Asia, as metabolic diseases in Asia tend to occur at lower BMI cutoffs than in industrialized countries. Across countries, obesity tends to increase with level of development and urbanization. However, within the four countries for which we have data, obesity is not very strongly correlated to income. Obesity is a problem of the urban poor as well as the rich, and the urban poor have the added predisposing factors associated with low birthweight.

A particular public health problem is related to the fact that 3–15 percent of households contain both an underweight and an overweight individual, usually an underweight child and an overweight non-elderly adult. This has implications for policy interventions, and indicates that it is simplistic to assume that communicable diseases are associated with poverty and noncommunicable diseases with affluence.

To estimate costs of chronic disease in the two case studies, the authors trace the relative risks of underlying

diet-related factors as well as early childhood risk factors onto five important diet-related chronic diseases (hypertension, diabetes, stroke, coronary heart disease [CHD], and cancer). They estimate the current and projected costs of these diseases in terms of lost work output due to mortality and health care costs.

In China in 1995, diet-related chronic diseases accounted for 41.6 percent of all deaths and 22.5 percent of all hospital expenditures. The economic costs for this diet-related component are estimated as 2.1 percent of GDP. We estimate that in China at minimum one-fifth to one-quarter of these diseases are attributable to dietary factors. Tracing these diseases back to childhood factors suggests that the low birthweight of those who are currently adults accounts for at least 10 percent of stroke and CHD, one-third of diabetes, and almost one-half of hypertension. Diet-related chronic disease is projected to increase to 52.0 percent of all deaths in China by 2025. At that time, dietary factors (principally overweight) will account for an increased share of chronic disease, and childhood factors will decline in significance.

In Sri Lanka, diet-related chronic diseases currently account for 18.3 percent of all deaths and 10.2 percent of public hospital expenditures (but 16.7 percent of all hospital expenditures). The current loss attributable to diet-related chronic disease is estimated as 0.3 percent of GDP. In 2025, chronic diseases are expected to account for 20.9 percent of all deaths. Currently, dietary factors account for 10–20 percent of these chronic diseases. By 2025, dietary factors (particularly overweight) will increase in importance to account for 18–40 percent of chronic disease, and the importance of low birthweight as a predisposing factor will increase.

What Are the Policy Options?

National nutrition policies have had impressive effects in developed countries, and China has started in this direction by issuing national dietary guidelines. Agricultural policy is important, and the relatively cheap availability of vegetable oil may have had dramatic (adverse) dietary effects in Asia. Price policy has considerable potential, in particular the pricing of oils. Promoting a traditional diet has been quite helpful in holding down fat intake and obesity in Korea. Health promotion efforts in Mauritius succeeded in reversing several adverse trends contributing to CHD. Thailand has successfully used mass media for other health promotion efforts and is moving to pilot schemes in the area of chronic disease. And Singapore has been the leader in the region in exercise promotion and weight control in schools.

What Might Future Programs Look Like?

The study concludes by briefly outlining elements of future programs. These should include first and foremost national food and agricultural policies that consider diet-related chronic diseases. Key program elements include agricultural policy shifts, promotion of traditional healthful eating patterns, use of the mass media to build public awareness regarding diet and exercise, and school-based programs. China has gone the furthest toward a national plan, and needs increased capacity to link economic policy to nutritional concerns. There is not enough experience in Asia as yet to move to full-scale programs. What is emerging is a clear need for a life-cycle strategy for urban nutrition. There are also unique important capacity building components that could be begun immediately. Implementation and evaluation of pilot studies will also be necessary. Finally, it is important to continue to do research on the underlying causes of the nutritional transition.

Keywords: Asia, nutrition, obesity, chronic disease

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