

## Review Article

# Double burden of malnutrition: the Vietnamese perspective

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In addition to the burden of undernutrition, many recent studies in Vietnam demonstrate that overweight/obesity and a number of nutritionally-related chronic diseases (NRCD) (hypertension, diabetes, cardiovascular diseases) are on the rise at an alarming rate. This could be the result of dietary and life style changes. The double burden of malnutrition (DBM) - a typical phenomenon during nutrition transition in developing countries, has been clearly reported in our country. Controlling nutritional deficiencies and newly emerging nutrition problems to reduce the double burden of malnutrition in Vietnam requires comprehensive and appropriate measures as set out in the National Nutrition Strategy 2001 – 2010, as well as a greater research effort on transitional nutrition.

**Key Words:** Vietnam, double burden of malnutrition (DBM), nutritionally-related chronic disease (NRCD) nutrition transition

## INTRODUCTION

A large body of evidence indicates that a number of Asian countries, as well as Vietnam, currently face a double burden of malnutrition (DBM).<sup>1,2</sup> Thanks to the country's reform program and its economic growth, the food supply on a macro scale has improved. The diet of the Vietnamese people has changed remarkably. The intake of animal sourced foods, fat/oils and ripe fruits has increased significantly.<sup>3</sup> During the last decade, there was a rapid and sustained reduction in malnutrition rates. However, child malnutrition remains high, especially in rural areas. Recently, overweight, obesity and nutritionally-related chronic diseases (NRCD) have increased rapidly in Vietnam. Vietnam now has to face a DBM. It is important to set up appropriate policy on nutrition and health so to improve the diet and life style of the local population for the prevention and control of the DBM.

## ECONOMIC AND DEMOGRAPHIC BACKGROUND

In the past decade, and especially in past five years, the growth of the Vietnamese economy has been high. The economic structure has changed and industrial as well as service growth rate and GDP have increased remarkably. Rapid economic growth has brought about pronounced urbanization in all parts of the country.<sup>4</sup> Immigrants accounted for 30% of the urban population. Patterns of morbidity and mortality have changed in Vietnam in the past 30 years. The percentages of morbidity and mortality due to non-communicable diseases are increasing compared to those caused by communicable diseases.<sup>5</sup>

## Food supply and consumption

In general, the food supply has increased, including that of rice, animal husbandry and meat products, and it is now

particularly varied in terms not only of energy but also of protein and fat sources. This helps ensure national food security at the macro level while food insecurity still exists in some regions with frequent natural disasters and floods.<sup>4</sup>

Dietary change has been the most significant phenomenon regarding nutrition transition judged by the evidence from on the nature and trends in food consumption and dietary patterns.

## THE EXISTENCE OF THE DOUBLE BURDEN OF MALNUTRITION IN VIETNAM

*Protein energy malnutrition* in children remains a large challenge for community health and development in Vietnam. Until a few years ago, the percentage of malnutrition in Vietnam reduced impressively. However, the malnutrition rate is still high and varies greatly geographically, particularly with regard to stunting.<sup>9</sup> Low birth weight and early malnutrition still prevail, especially in poor and underdeveloped regions

As a result of effective micro-nutrient deficiency prevention programmes, there have been definite improvements with regard to vitamin A deficiency as well as iodine deficiency disorders and nutritional anemia. However, sub-clinical vitamin A deficiency (assessed by serum vitamin A) still exists and varies by region, even with the implementation of on-going universal and periodical vitamin A supplementation programs throughout the country. In some region

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**Table 1.** Food consumption by Vietnamese households during different time periods (gram/head/day)

	Before 1945†		1987‡	2000§	2005¶
	a	B			
1. Rice	500	275	452	397	451
2. Other staple foods	25	25	6.2	16.0	35.8
3. Tofu	-	-	6.8	13.4	33.0
4. Beans	-	-	2.8	6.0	2.7
5. Oil, fat	12	3	3.0	6.8	15.2
6. Vegetables	50	100	175	178	288
7. Fruits	-	-	4.1	62.0	97.3
8. Meats	25	0	24.4	51.0	62.0
9. Fish and sea-foods	20	10	50	51.5	51.8
10. Egg, milk	-	-	2.9	10.3	22.2
11. Sugar	-	-	0.7	7.8	6.9
12. Salt, seasonings	-	-	-	-	24.1

† FAO statistics, 1954.<sup>2</sup> ‡ Nutrition survey 1987.<sup>7</sup> § Nutrition survey 2000.<sup>6</sup> ¶ Overweight and obesity survey 2005, small sample of adult in suburban Hanoi areas.<sup>8</sup>

of Vietnam, 20-40% of children under 5 have been found to be sub-clinically vitamin A deficient.<sup>10</sup> Meanwhile according to a survey conducted in 2006, the prevalence of anemia has fallen considerably, but remains high in pregnant women (29-35%) and children (32-38%).<sup>10</sup>

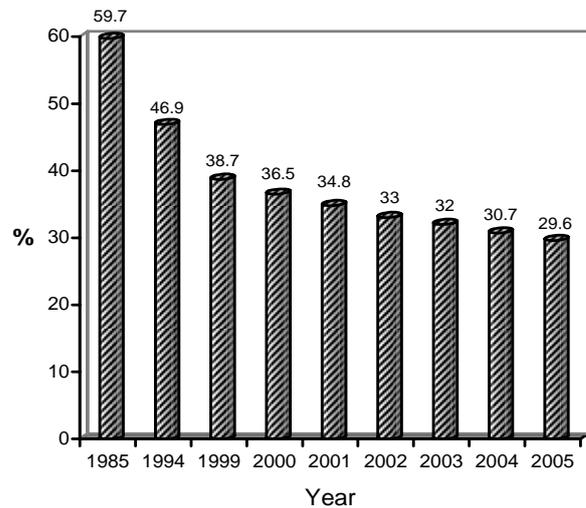
**Overweight and obesity.** have become an increasing community health problem with no report of this problem before 1995. In 2005, the National survey on overweight and obesity showed that the prevalence of overweight/obesity among the 45-54 age group was around 43% in urban and 17% in rural areas respectively.<sup>8</sup> Overweight accounted for the greater proportion in these findings.

**Metabolic syndrome.** The previously mentioned 2005 survey, conducted in one urban and one suburban location in Hanoi, indicated the prevalence of metabolic syndrome among adults to be 17.1% in urban and 9.0% in suburban areas. Total prevalence was found to be 13.1% (95% CI 12.1 – 14.0).

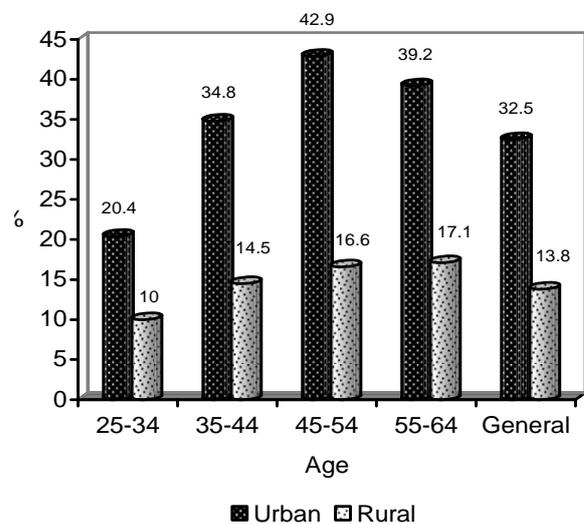
**The increase of non-communicable chronic diseases and conditions**

**High blood pressure.** High blood pressure has become a particular health problem in Vietnam because of its high morbidity rate. The rate of hypertension among adult was 1% in 1960 in Northern Vietnam and increased to 23.1% in 2001.<sup>11</sup> The number of strokes have tripled compared to 10 years ago. Coronary vascular diseases have increased 6 -fold compared to the 1960s.

**Diabetes.** While the diabetes prevalence rate in Hanoi in 1989 was 1.6% in urban and 0.96% in suburban area, recent investigations by the Institute of Endocrinology (2002) show that the diabetes rates in urban areas of 4 major cities in Vietnam have reached 4.9% and the rate of fasting glucose in tolerance 5.9%.<sup>12</sup>



**Figure 1.** Prevalence of stunting in children 1985-2005



**Figure 2.** Distribution (%) of overweight and obesity by age groups and regions in the 2005 survey (Reference 20)

Increases in the full spectrum of non-communicable chronic diseases had contributed to the changed patterns of disease and mortality in Vietnam.<sup>5</sup>

**ACTIONS NEEDED**

To solve the newly emerging nutrition problems in a new context requires continuous and strong effort in health and nutrition promotion. This includes the need to find effective solutions for childhood malnutrition, with sustainable reductions in stunting, underweight, vitamin A deficiency, iron deficiency anemia, and iodine deficiency disorders, along with measures to identify and control newly emerging nutrition problems.

**AUTHOR DISCLOSURES**

Nguyen Cong Khan and Ha Huy Khoi, no conflicts of interest.

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