

## Changing Nutritional Status of Preschool Children – The Recent Experience in China

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### INTRODUCTION

The economic reform which started in 1978 led to the rapid growth of China's economy and the improvement of living standard. GDP per capita increased by 402% during the last two decades (adjusted to 1978 price) (State Statistical Bureau, 1998a). The annual income per capita in rural areas increased 4.37 times and in the urban areas, 3.12 times (State Statistical Bureau, 1998b). On the average, the daily intake of energy and protein have met the basic needs of the Chinese since early 1980s (Ge, 1996) and the quality of the diet has been greatly improved. Results from China's two Nationwide Nutrition Surveys conducted in 1982 and 1992 showed that the proportion of protein from animal food increased 65.8%, and that from vegetables declined slightly (Ge, 1996).

### NUTRITIONAL STATUS OF PRESCHOOL CHILDREN IN CHINA

Enough food supply and the increased quality of nutrition ensured the continuous improvement of nutritional status of children, as measured by different anthropometric measurements. The average height-for-age and weight-for-age of preschool children are at the normal level, if compared to WHO standard, though they are still lower than the median of WHO standard (Ellen, 1996; Shen *et al.*, 1996; Chang *et al.*, 1996).

#### Trends of low weight-for-age

During the last 5 years, the prevalence of low weight-for-age among pre-school children as defined by  $<-2SD$  of WHO standard, has declined (Table 1). In urban areas, it declined from 8.0% in 1990 to 4.6% in 1995, and in rural children, from 22.6% in 1990 to 17.8% in 1995 (Chang *et al.*, 1996).

**Table 1.** Prevalence of Low Weight-for-Age of Preschool Children

<i>Year</i>	<i>Urban</i>	<i>Rural</i>
1990	8.0	22.6
1992	6.2	19.4
1995	4.6	17.8

### Prevalence of stunting

On the average, the current prevalence of stunting (<-2SD of WHO Standard) among preschool children in China is 8.9% in urban areas and 39.1% in rural areas. Unlike the rapid decline of prevalence of low weight-for-age, which declined by 42.5% among urban children and 21.2% among rural children in 5 years, the prevalence of stunting declined very slowly (Table 2) (Chang *et al.*, 1996).

**Table 2.** Prevalence of stunting among Preschool Children

<i>Year</i>	<i>Urban</i>	<i>Rural</i>
1990	9.4	41.4
1992	9.2	39.7
1995	8.9	39.1

### Variation in low weight and stunting

There are great geographic variations of nutrition status among preschool children in China. Besides the urban-rural differences shown in Tables 1 and 2, the nutritional status varies from place to place. Children living in the eastern coast, such as Shanghai, Beijing, Tianjing, Jiangsu and Zhejiang, which are the most developed areas in China, are at better nutritional state, where the prevalence of low weight-for-age among rural children is very low (10% or less). On the other hand, in southwestern areas such as Guangxi, Guizhou, Yunnan, etc, which are known as China's less developed areas, the prevalence of low weight-for-age and stunting is very high.

Besides the variation in child nutritional status, Shen *et al.* (1994) has also observed the slower improvement of nutritional status as measured by average height among rural children during the period from 1987 through 1992, compared to their urban counterparts. The data from China Food and Nutrition Surveillance System shows the same trend in terms of average z score of height-for-age (Table 3). From the same data set, the average z score of weight-for-age among urban and rural children did not change very much during the same period, and the average z score of weight-for-height shows the inverse trend (Table 3). This might indicate that the rural children has become much fatter than urban children.

**Table 3.** Average Z-Score of Major Anthropometric Measurements Among Preschool Children.

<i>Year</i>	<i>Height-for-age</i>		<i>Weight-for-age</i>		<i>WT-for-HT</i>	
	<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>	<i>Urban</i>	<i>Rural</i>
1990	-0.50	-1.78	-0.62	-1.22	-0.32	-0.18
1992	-0.43	-1.62	-0.28	-0.96	-0.10	-0.18
1995	-0.21	-1.63	-0.22	-0.84	-0.06	0.23

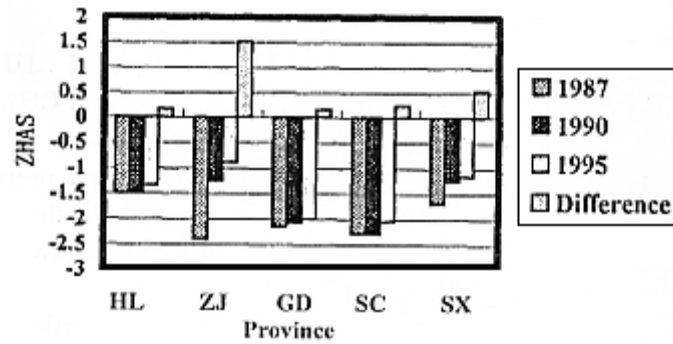


Figure 1. Trends of ZHAS in 5 provinces

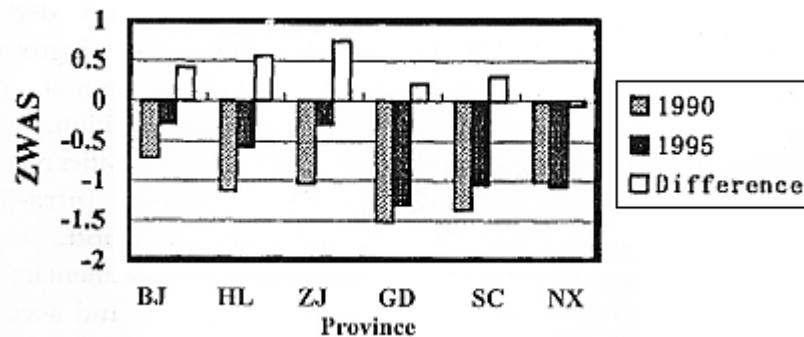


Figure 2. Trends of ZWAS in 6 Provinces

## MAJOR ASPECTS OF CHILD MALNUTRITION IN CHINA

Besides those already mentioned in the previous sections, malnutrition among Chinese children shows some specific features:

1. Incongruous relationship between economic development and improvement of child nutrition. Usually there is some time lag between economic growth and improvement of child nutrition. While the macro economy is the underlying factor to malnutrition, economic growth do not lead automatically to a corresponding change in child nutrition, Besides food availability, special activities related to child nutrition, such as intra-household distribution of food, child care (breastfeeding, supplementary food, etc.), disease prevention and accessibility of health services, are important factors that determine nutritional status (Fu *et al.*, 1996). Guangdong province is an excellent sample. Guangdong has experienced rapid economic growth recently; the income and standard of living have increased greatly compared to the situation before the reform and to other provinces in China. In 1992, the per capita GDP of the province ranked 5th in the country, but stunting prevalence ranked 19th, and the rank of low weight-for-age prevalence was even much worse (26th among all the 30 provinces in China). Also found was the slow decline in malnutrition from 1987 to 1995 compared to other 'developed' provinces, such as Zhejiang (Figures 1-2). The average z scores of height-for-age among preschool children in Guangdong province improved very slightly from -2.15 in 1987 to -2.00 in 1995, and the average z scores of weight-for-age increased by 0.21 from 1990 to 1995. However, compared to Zhejiang, the province with the same rapid economic growth, the improvements were much lower (Chang *et*

*al.*, 1996; Shen *et al.*, 1994). Another survey done by SSB did indicate that though the prevalence of full breastfeeding among children within three months after birth shows an increasing trend, the absolute proportion of breastfeeding is still very low (Table 4). Most children are partially breastfed within the first three months after birth (State Statistical Bureau, 1993a). Working behavior is also a factor that affects child care. Women in southern China are more likely to work in the field even while they have very young babies.

**Table 4.** Percentage of feeding model among children in the first four months after birth

<i>Months Birth</i>	<i>Urban</i>			<i>Rural</i>		
	<i>FBF*</i>	<i>PBF</i>	<i>NBF</i>	<i>FBF</i>	<i>PBF</i>	<i>NBF</i>
0	17.5	72.5	10.0	51.4	47.1	1.5
1	17.2	75.5	7.3	39.9	58.5	1.6
2	6.5	82.6	10.9	28.7	69.4	1.9
3	4.8	87.5	7.8	22.6	74.3	3.1
4	3.7	84.7	11.6	21.5	76.3	2.2

FBF: Full Breast-feeding

PBF: Partial Breast-feeding

NBF: Non-breast-feeding

### ***High incidence of disease***

Incidence rates of respiratory diseases and diarrhea among preschool children are higher among rural preschool children than among urban children. The 1992 Children Survey shows that the incidence rate of diarrhea during the previous two weeks among rural children was 60% higher than their urban counterparts (92 per 1000 vs 57 per 1000). And the children living in mountainous areas are more likely to suffer from diarrhea than those living in plain rural areas (Table 5) (State Statistical Bureau, 1993b).

**Table 5.** Incidence Rates of Diarrhea Among Preschool Children in Different Places (Rural China, 1992)

<i>Region</i>	<i>Diarrhea</i>	<i>Relative to Urban</i>
Urban	57.5	1.00
Rural Total	91.9	1.60
Plain	72.7	1.26
Hilly	96.7	1.68
Mountainous	107.6	1.87

**Table 6.** Percent Of Preschool Children Who Did Not Seek Care When Ill. (Rural China, 1993)

<i>Region</i>	<i>% of non-seeking care</i>
Richest	15
Rich	17
Poor	20
Very poor	28

Source: MOH, China: 1993 Health service survey, p. 34

**Table 7.** Percent of preschool children having regular physical examinations once a year (Rural China, 1993)

<i>Region</i>	<i>%</i>
Richest	56
Rich	38
Poor	23
Very poor	21

Source: MOH, China: 1993 Health service survey, p. 49

### **Poor access to health services**

Though China has established a three-level health delivery system since 1949 where the Rural Cooperative Medical Schemes (CMS) once covered 90% of villages and 95% of the rural people, the recent economic reform led to the collapse of CMS. Rural people could no longer get free medical care, even for common diseases, particularly in poor areas. Table 5 illustrates the proportion of children by economic development level who could not seek medical care when they were ill. It could be seen that even in the so-called economically developed rural areas, about 15% of sick children did not go to see doctors when ill. In the very poor places, the proportion increased to 28%.

The low curative service is also accompanied by the even much lower preventive service. Among rural children under age 5, few were given regular physical examination (Table 7). Among children living in very poor rural areas, only one out of 5 could get regular physical examination once a year. Even in the richest areas, the percentage is only 55%.

### **UNSAFE WATER SUPPLY AND POOR SANITATION IN RURAL AREAS, ESPECIALLY AMONG THE POOR**

Bad sanitation and low proportion of safety water supply in rural China are two of the major causes of diarrhea among rural children. Table 8 shows the percentage of children with different types of drinking water. It could be seen that about 40% of the rural children have difficulty in getting safe drinking water. In mountainous areas, it is

even much worse. Only 40% of the population are covered by safe water, with 14% from tap water.

**Table 8.** Percent of People by Source of Drinking Water. (Rural China, 1992)

<i>Region</i>	<i>Tap</i>	<i>Deep Well</i>	<i>Others</i>
Rural total	16.9	43.9	39.2
Plain	21.3	54.0	24.7
Hilly	13.8	52.8	33.4
Mountain	14.4	26.0	69.6

*Source:* SSB: 1992 National Sample Survey on the Situation of Children - National Final Report, 1993, p.23

## CONCLUSIONS

- 1) Nutritional status of preschool children in both urban and rural areas has been greatly improved in the recent years, associated with the improved economic status in the country. The status in urban areas is similar to that in developed countries.
- 2) The improvement rate in rural areas lags below urban areas, indicating a challenge to public health authorities.
- 3) Though the prevalence of over-weight is not very high in urban areas, there is a significant increasing trend.
- 4) There is extremely large geographic variation in child nutritional status, which are related not only to the economic level in the various regions, but also more importantly, to other factors such as intra-household food distribution, disease incidence, access to health services and care. Experience from the UNICEF projects for the improvement of child nutrition in poor counties of China indicates that community-based nutrition intervention activities are effective strategies for the poor areas.

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