Original Article

Temporary stability of urban food and nutrition security: The East Jakarta study

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The food and nutrition situation in households of East Jakarta was assessed in 1993/1994 and 1998/1999 with the aim of identifying the determinants of potential problems and the dynamics of change. In 1993/1994, the nutritional status of approximately 73% of children under 5 years of age and 60% of mothers was within the normal range, although underweight and overweight were prevalent in almost all households. Between 1998 and 1999, there was a sharp increase in fathers reporting unemployment. The consumption of animal food sources decreased, whereas the consumption of food derivatives such as oils and sugar remained high. Approximately 90% of the population obtained drinking water from wells. By 1998, the public garbage collection system had almost completely collapsed in East Jakarta. Between 1993 and 1998, the prevalence of diarrhoea and acute respiratory infections in children aged under 5 years increased dramatically, from 8 and 44% to 24 and 70%, respectively. The urban environment has undergone significant changes. In Indonesia, as a whole, many achievements in the improvement of household food security and care have been lost due to the economic and political crisis. The statistical association between mothers' and fathers' education and the nutritional status of their children that was observed in 1993/94 did not appear in the 1998 survey. It seems that the education-related coping mechanisms of the parents were inadequate to deal with the rapid deterioration in the economic and political situation.

Key words: feeding practice, food security, Jakarta, nutritional status, poverty.

Introduction

Over the past 30 years, Indonesia, like other Asian countries, has been undergoing a demographic and developmental transition. Significant progress has been achieved in economic development, poverty alleviation and improvement of the health and nutrition situation. With economic development, urbanization in South-east Asia has increased, but little is known about the dynamic changes in the food and nutrition security of urban dwellers. The economic crisis that hit Indonesia in 1997, which was followed by social and political unrest, seems to have wiped out several years of progress. The situation has been further exacerbated by a severe drought, caused by climatic changes associated with El Nino.

It was predicted that by the year 2000 approximately half the world's population would live in urban areas and over one billion people would live in the miserable conditions of the so-called marginal areas of the cities.[1] Due to the economic and climatic crisis, the migration from rural to urban areas in Indonesia, including Jakarta, may be lower than in normal years.[2] Nevertheless, the impact on the food and nutrition situation in urban areas may still be profound. The closing of many factories has led to an increase in the rate of unemployment and underemployment and a decrease in purchasing power. Furthermore, because of the drought, the food supply to urban areas decreased, leading to high commodity prices and causing food insecurity, especially in the poor community.

In 1993, a representative cross-sectional survey was undertaken in East Jakarta to examine the impact of dynamic changes in urban areas and to identify the determinants of potential nutritional problems arising from the crisis. This survey included 243 households with children under 5 years of age. In 1994, the nutritional status of 89 mothers and under-5-year-old children from the same households surveyed in 1993 were observed. In 1998 and 1999, representative cross-sectional surveys were again conducted in the same study site in households with children under 5 years of age. The first survey was implemented in April 1998 and covered 544 households and the second survey was conducted in December 1998 and covered 388 households. A further survey was undertaken in March 1999, covering 388 households.

Nutritional status

The outcomes of the longitudinal survey indicate changes in the nutritional status of mothers and children under 5 years of age, as well as at the household level. There was a dramatic change in children's nutritional status between 1993 and 1994. The prevalence of undernutrition (measured by weight-for-height) decreased from 15.1% in 1993 to 4.4% in 1994, while the prevalence of overnutrition increased from 4.4% to 9.4% over the same period (Table 1). In contrast, the prevalence of both undernutrition and overnutrition of mothers was

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high in both 1993 and 1994 and had further increased in 1994 (Table 2).

The survey not only showed changes in the prevalence of nutritional problems, but also gave an indication of changes for individuals in each classification (undernourished, normal and overnourished). All children who were undernourished in 1993 improved their nutritional status, while some of those who were classified as normal in 1993 had deteriorated by 1994, becoming either undernourished or overnourished (Table 1). Changes in nutritional status were also observed for mothers (Table 2) and at the household level (Table 3). Comparison of the changes in the nutritional status of mothers, children and households indicates that the change of nutritional status within the households was the most dramatic and that changes in the mothers' nutritional status were greater than the changes in the childrens' nutritional status (Table 4).

The classification of at least 20% of mothers and children changed at the household level either to a better or worse nutritional status. The changes were much greater at the household level than at the individual level, because almost 50% of households were classified as having a nutritional status in 1994 that was different from their nutritional status in 1993.

With the onset of the crisis in Indonesia, the gross domestic product (GDP) fell from US$1110 per capita in 1997 to US$680 per capita in 1998. As a result, the poverty rate in urban areas was expected to more than double from 3.8% in 1997 to 8.3% in 1999, while in rural areas a proportionately lesser increase was anticipated, from 13.7 to 17.6%.[2]

Employment status

According to the results of the survey, the rate of unemployment of fathers increased from 2% in 1993 to over 7% in 1999 (Table 5). This 5% increment in unemployment hides the far greater problem of underemployment. Many fathers had to take up a lower grade of occupation in 1999 compared with their occupation in 1993. Furthermore, their 1999 occupations were not appropriate to their educational levels.

In addition to the increase in unemployment and underemployment, many companies have decreased working time because of a reduced demand for their products. As a result, household incomes were lower although jobs were maintained.

Food consumption

The crisis was associated with a negative shift in food consumption in East Jakarta. Rice, oil and sugar remained the

Table 1. Changes in childrens' nutritional status between 1993 and 1994 in East Jakarta (n = 89)

		1994		
		Undernourished (%)	Normal (%)	Overnourished (%)
1993	Total (%)	4.4	86.8	9.4
Undernourished (%)	15.1	–	13.2	1.9
Normal (%)	81.1	4.4	73.6	3.1
Overnourished (%)	4.4	–	–	4.4

Table 2. Changes in mothers' nutritional status between 1993 and 1994 in East Jakarta (n = 89)

		1994		
		Undernourished (%)	Normal (%)	Overnourished (%)
1993	Total (%)	11.4	67.7	20.9
Undernourished (%)	10.4	5.9	4.5	–
Normal (%)	72.2	5.5	60.2	6.5
Overnourished (%)	17.4	–	3.0	14.4

Table 3. Changes in household nutritional status between 1993 and 1994 in East Jakarta (n = 89)

		1994			
		Normal (%)	Normal/under-nourished (%)	Normal/over-nourished (%)	Normal/undernourished/ overnourished (%)
1993	Total (%)	17	49	17	17
Normal (%)	29	10	14	4	1
Normal/undernourished (%)	38	4	30	–	4
Normal/overnourished (%)	23	2	2	10	9
Normal/undernourished/overnourished (%)	10	1	3	3	3

main food sources, with no reduction in consumption frequency. However, other staple foods, such as bread and noodles, were consumed less frequently than before. The intake of high-quality foods providing minerals and vitamins, such as milk, eggs and poultry, decreased markedly. Egg consumption on a daily basis decreased from 32.9% in 1993 to 22.9% in 1998, but increased to 29.9% in 1999. The consumption of poultry on a weekly basis decreased sharply from 60% in 1993 to 34.4% in 1999, while the percentage of those who did not consume poultry increased from 1.7% in 1993 to 17.3% in 1999.

Food scores based on frequency of consumption also indicate the same trend (Fig. 1). Lower scores indicate less frequent consumption. As shown in Fig. 1, the frequency of consumption of different food items is higher among urban dwellers than rural peasants. Comparing the food consumption scores in urban areas (Jakarta) with those in rural areas (Kalimantan) before and after the crisis showed that, after the crisis, the food pattern in the urban area tended to imitate the consumption pattern in the rural area as a way of coping with the crisis. In general, the daily diet of the survey population appears to have become less varied. The negative shift in food consumption seems to have affected all income groups, as shown in the example of meat consumption in Fig. 2.

The reason for the decreased consumption of particular foods, such as meat, eggs or processed foods, is indicated in Fig. 3. High- and low-income households had to spend increasingly more money on food. The consumption frequency of staples, such as rice, vegetable oil and sugar, could only be maintained because of the government policy of ensuring a social safety net, under which these food items were subsidized and their prices remained stable. The increased share of household income allocated to food left no margin to cope with increased health costs, either in low- or even in high-income households.

In general, the crisis reduced job opportunities, which led to lower purchasing power. As a consequence, household eating patterns changed, in particular by reducing the consumption of relatively expensive food. Household food expenditure nevertheless increased because the price of food increased.

Table 4. Comparison of changes in nutritional status between 1993 and 1994 in East Jakarta (n = 89)

	% Remaining	
	In the classification	Normal
Mothers	81	60
Children	78	74
Households	53	10

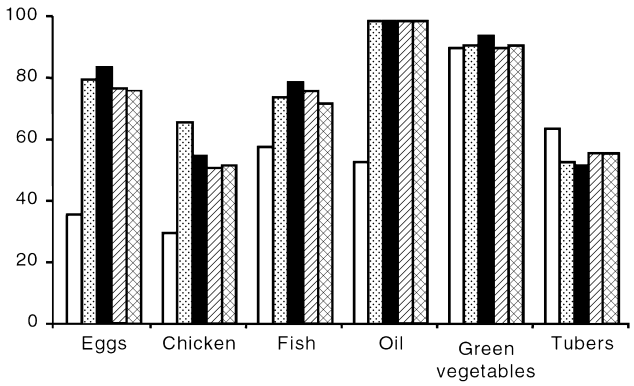

Figure 1. Food consumption scores for an urban area (Jakarta; (▨), April 1993; (■), April 1998; (▨), December 1998; (▨), March 1999) and a rural area (Kalimantan; (□), 1995).

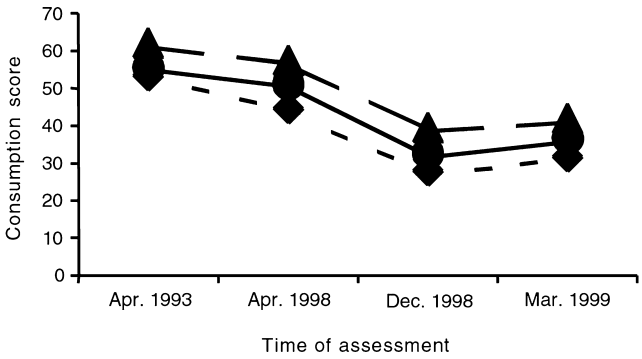

Figure 2. Meat consumption score for different income groups from 1993 to 1999 in East Jakarta. (◆), low income; (●), middle income; (▲), high income.

Table 5. Frequency distribution of occupation and educational level from 1993 to 1999 in East Jakarta

	April 1993 (n = 243)	April 1998 (n = 544)	December 1998 (n = 388)	March 1999 (n = 388)
Occupation of father				
Civil servant/army	19.5	11.4	10.8	8.2
Private company worker	33.8	30.9	34.8	27.3
Small-scale trader	19.0	10.3	21.6	19.6
Other*	25.5	44.5	27.8	37.4
Unemployed	2.2	2.8	4.9	7.5
Educational level > 6 years				
Father	66.0	79.0	79.0	74.0
Mother	56.8	69.4	69.0	66.9

*Including labourer, lower-level industrial worker, driver and craftsman.

Health and nutritional status

In contrast with household food expenditure, which tended to increase, household expenditure on health tended to decrease (Fig. 3). The sharp depreciation of the rupiah and the correspondingly unfavourable exchange rate has raised the prices of drugs, vaccines, contraceptives and other medical supplies. Since the crises started, drug prices have increased two- to threefold. Subsidies for the drugs provided to public health centres do not seem to be enough to avoid significant increases in drugs cost.[2] This situation will curtail access to health care for many people and that outcome has, indeed, been observed in East Jakarta.

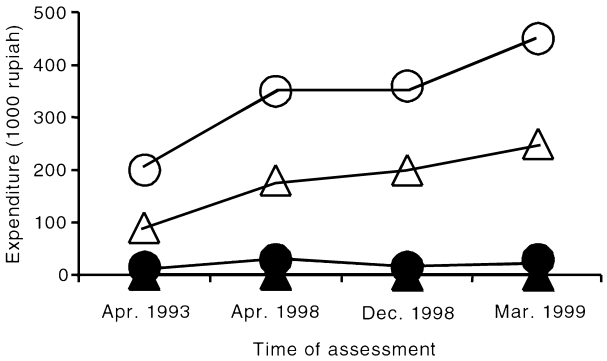

Figure 3. Household food (open symbols) and health expenditure (closed symbols), showing the 25th (▲, △) and 75th (●, ○) percentiles, from 1993 to 1999 in East Jakarta.

As shown in Fig. 4, the prevalence of acute respiratory infection and diarrhoea was higher in 1998 and 1999 than in 1993. Although the high price of medicine could be one explanation, the increase in these diseases could also indicate worsening living conditions. This explanation is supported by data showing that the public garbage collection system was on the point of collapse and that more households were disposing of their garbage in the open rather than burning or burying it (Fig. 5).

Frequent infectious diseases combined with inadequate food intake will result in growth retardation.[3,4] The data presented above show that these two factors were likely to occur during the crisis. In particular, the nutritional status of children under 5 years of age was negatively affected.

Growth retardation (stunting) is not only associated with nutrition intake but also, more importantly, related to the socioeconomic conditions of the community. It can be considered as an indicator of poor living conditions and socioeconomic deprivation in the community.[3–5] The decrease in stunting prevalence between April 1993 and April 1998 indicates an improvement in the socioeconomic conditions of the community. However, the fact that stunting prevalence was similar in 1999 and 1993 suggests that the gains of the previous 5 years were lost within 1 year. The patterns of stunting prevalence were similar for boys and girls in Indonesia as a whole, but it seems that in East Jakarta boys were more affected by the crisis than girls (Table 6).

Wasting is more likely to indicate the acute nutritional status of the child and could show recent nutritional changes.

Figure 4. Prevalence of acute respiratory infection and diarrhoea, from 1993 to 1999 in East Jakarta. (□), April 1993; (▨), April 1998; (▨), December 1998; (■), March 1999.

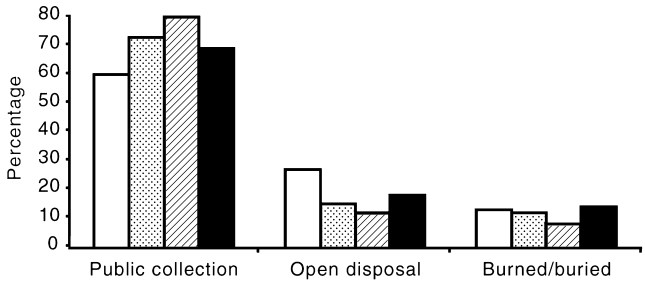

Figure 5. Garbage collection in East Jakarta from 1993 to 1999. (□), April 1993; (▨), April 1998; (▨), December 1998; (■), March 1999.

Table 6. Prevalence of stunting and wasting of children under 5 years of age by sex from 1993 to 1999 in East Jakarta

	April 1993	April 1998	December 1998	March 1999
Sample size (*n*)				
Boys	145	353	218	239
Girls	137	284	224	203
Total	282	637	442	442
Stunting (%)				
Boys	21.4	15.0	25.2	23.4
Girls	21.9	16.5	23.2	19.2
Total	21.6	15.7	24.2	21.5
Wasting (%)				
Boys	17.2	16.4	11.5	14.2
Girls	12.4	18.3	11.6	12.8
Total	14.9	17.3	11.5	13.6

Table 7. Mothers' nutritional status based on body mass index from 1993 to 1999 in East Jakarta

	April 1993 (n = 232)	April 1998 (n = 544)	December 1998 (n = 388)	March 1999 (n = 385)
BMI category				
CED (< 18.5 kg/m^2)	13.4	12.3	14.7	13.0
Normal (18.5–< 25.0 kg/m^2)	63.8	66.7	66.8	63.6
Overweight (≥ 25.0 kg/m^2)	22.8	21.0	18.6	23.4

BMI, body mass index; CED, chronic energy deficiency.

The overall increase in wasting prevalence among children under 5 years of age was observed in April 1998, at the beginning of the crisis (Table 6). During this period, prices were relatively higher than at the other survey dates and government subsidies had not yet been established; the subsidies came into effect in December 1998. Furthermore, many households still had to learn how to adjust and cope with the rapid deterioration of their economic situation and the breakdown of social services.

Unlike children's nutritional status, which was very much influenced by the crisis, mothers' nutritional status did not show significant changes. Even though the prevalence of overweight mothers decreased slightly in December 1998, overnutrition and undernutrition were, in general, as prevalent before as during the crisis (Table 7).

Conclusions

Since the crisis began, the government has launched a social safety net programme to assist poor and malnourished children. According to a survey undertaken in March 1999, the food aid programme had reached 46.6% of households. The prevalence of stunting is significantly higher in the group receiving food aid than in the group without food aid. This suggests that the food aid reached the most vulnerable households. The finding that the nutritional status of mothers remained relatively unaffected while the nutritional status of their children deteriorated shows that policies to secure food accessibility for households are necessary but insufficient to secure adequate food intake for all household members. Nutrition education is also needed to obtain adequate intra-household food distribution and utilization.

Urban food and nutrition security are highly volatile.[6] Under the same economic and political conditions, the nutritional situation of urban dwellers will usually improve faster than the situation of their rural counterparts. However, in times of crisis, food and nutrition insecurity is exacerbated and the urban population will be at higher risk. This potential danger needs careful attention in future planning for food and nutrition security in order to avoid suffering and socio-political turmoil.

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