At the time of independence majority of Indians were poor. In spite of spending over 80 per cent of their income on food, they could not get adequate food. Living in areas of poor environmental sanitation they had high morbidity due to infections; nutrition toll due to infections was high because of poor access to health care. As a result, majority of Indians especially children were undernourished. The country initiated programmes to improve economic growth, reduce poverty, improve household food security and nutritional status of its citizens, especially women and children. India defined poverty on the basis of calorie requirement and focused its attention on providing subsidized food and essential services to people below poverty line.

After a period of slow but steady economic growth, the last decade witnessed acceleration of economic growth. India is now one of the fastest growing economies in the world with gross domestic product (GDP) growth over 8 per cent. There has been a steady but slow decline in poverty; but last decade's rapid economic growth did not translate into rapid decline in poverty. In 1970s, country became self sufficient in food production; adequate buffer stocks have been built up. Poor had access to subsidized food through the public distribution system. As a result, famines have been eliminated, though pockets of food scarcity still existed.

Over the years there has been a decline in household expenditure on food due to availability of food grains at low cost but energy intake has declined except among the poor. In spite of unaltered/declining energy intake there has been some reduction in undernutrition and increase in overnutrition in adults. This is most probably due to reduction in physical activity.

Under the Integrated Child Development Services (ICDS) programme food supplements are being provided to children, pregnant and lactating women in the entire country. In spite of these, low birth weight rates are still over 30 per cent and about half the children are undernourished. While poverty and mortality rates came down by 50 per cent, fertility rate by 40 per cent, the reduction in undernutrition in children is only 20 per cent. National surveys indicate that a third of the children from high income group who have not experienced any deprivations are undernourished. The high undernutrition rates among children appears to be mainly due to high low birthweight rates, poor infant and young child feeding and caring practices. At the other end of the spectrum, surveys in school children from high income groups indicate that between 10-20 per cent are overnourished; the major factor responsible appears to be reduction in physical activity.

Some aspects of the rapidly changing, complex relationship between economic status, poverty, dietary intake, nutritional and health status are explored in this review.

**Key words** Dietary intake - nutritional status - poverty - preschool children - undernutrition
Introduction

At the time of independence the country faced two major nutritional problems - one was the threat of famine and acute starvation due to low agricultural production and lack of appropriate food distribution system, and the other was chronic energy deficiency because of low dietary intake mainly due to poverty and low purchasing power. Poor environmental sanitation and lack of access to safe drinking water led to high prevalence of infections; nutrition toll of infections was high because of poor access to health care. The country initiated multi-sectoral, multi-pronged programmes to combat poverty; simultaneously essential goods and services were provided to people below poverty line at a subsidized cost to improve their nutritional and health status.

After a steady but slow gross domestic product (GDP) growth in the initial four decades after independence, India has become one of the fastest growing economies in the world; currently GDP growth is over 8 per cent. There has been a steady decline in poverty rates from over 50 per cent in the seventies to about half that level in 2004-2005. Over the last three decades, the proportion of household expenditure on food has declined substantially because of the relatively low food grain prices and access to subsidized food grains. There was an improvement in energy intake and access to health care for the lower income group. As a result poverty and mortality rates came down by 50 per cent and fertility rate by 40 per cent; however reduction in undernutrition in children was only 20 per cent. There is a growing concern that outlays in nutrition sector have not brought about commensurate improvement in out puts such as improvement in quality and coverage of under nutrition programmes and out comes such as improvement in nutritional status.

While the country is yet to overcome problems relating to undernutrition and communicable diseases, it is increasingly facing problems of overnutrition and obesity; though obesity rates are higher in urban high income group, low income group is not totally free from overnutrition. Research studies in India have highlighted the possibility that undernutrition in childhood might be one of the predisposing factors for overnutrition and obesity in adult life. Some aspects of the changing complex relationship between economic growth, poverty and nutritional status in India is explored in this article.

Economic growth in India

India recognized the importance of planned growth of the economy with emphasis on human resource development and fostered both agricultural and industrial development. GDP growth over the last five decades and the targeted GDP growth and actual growth over the Ten Plan periods is given in Figs 1 and 2.

Initially GDP growth was slow but currently GDP growth is over 8 per cent. The increase in GDP growth is mainly due to service sector and industrial growth. Despite faster growth, jobs in the organized sector have not increased. Agriculture which remains the major sector for rural employment and livelihood has lost its growth momentum. As a result the pace of decline in unemployment and proportion of population below the poverty line has been modest. There is inequitable distribution of income between groups and different States in the country (Table I). The relationship...
between economic growth and poverty reduction is no longer linear. It is estimated that 40 per cent of the poor household's share in income is only 20 per cent while highest 20 per cent households of the country have 46 per cent of the national income. In view of this changing scenario, the focus during Eleventh Plan is to achieve faster, more broad-based and inclusive growth which will provide employment, reduce poverty and bridge the disparities in access to essential services\(^1\).

**Poverty alleviation**

During the fifties, poverty was the major factor responsible for undernutrition in India. The country recognized that the association between poverty and undernutrition was mediated through several pathways\(^5\). Income poverty might result in (i) food insecurity and low dietary intake due to poor purchasing capacity and poor access to food stuffs; (ii) poor environmental hygiene resulting in repeated infections; (iii) duration and severity of infections was not reduced because of lack of public sector health care for effective treatment of infections; and (iv) low literacy hampering access to available services.

Majority of the low income group population were unskilled workers engaged in manual labour. Undernutrition had an adverse effect on work capacity and increased susceptibility to infections. Poor work output and absenteeism due to illness reduced their earning and purchasing power. Reduction in purchasing power resulted in low food intake for the entire family which further aggravated undernutrition. Efforts were therefore on cutting this mutually reinforcing linkage between poverty and undernutrition\(^6\).

India was the first country in the world to define poverty as the total per capita expenditure of the lowest expenditure class, which consumed 2400 K cal/day in rural and 2100 Kcal/day in urban areas and attempted to provide comprehensive package of essential goods and services to people below the poverty line. Initially the poverty line was defined on the basis of National Sample Survey (NSS) Household Consumption Expenditure data for 1973-74\(^6\). The poverty lines, defined as the basket of goods and services, have not been changed subsequently in order to preserve inter-temporal comparability, but the rupee value of the lines is regularly updated using the large sample consumer expenditure survey of the National Sample Survey Organization (NSSO) in order to reflect price increases that have taken place over the years. As there are urban and inter-State differentials in cost of goods and services, efforts were made to ensure that these are

| Table I. Disparity in growth amongst States/Union Territories |
|-----------------|-----------------|-----------------|
| Period          | Measure of disparity in growth @ (standard deviation) | Relative measure of disparity in growth between per capita income and NSDP @ (Covariance) |
| 1970-71 to      | 2.22            | 3.67            |
| 1979-80 to      | 1.81            | 0.71            |
| 1980-81 to      | 1.71            | 0.71            |
| 1990-91 to      | 1.02            | 5.23            |
| 1998-99         | 2.4             | 5.23            |

*Source: Tenth Five Year Plan (Ref. 2)*

Fig. 3. Urban rural and State specific poverty lines (Rs/per month).

*Source: Ref. 7. Figure prepared from the data from NSSO 2004-05 consumer expenditure survey.*
reflected in defining the poverty line. The importance of this adjustment can be gauged from the fact that the poverty lines for the States with the highest prices are 43 and 57 per cent higher for rural and urban areas respectively than those of the States with the lowest prices (Fig. 3). Time trends in poverty ratio computed by the Planning Commission on the basis of the quinquennial NSSO large sample survey is given in Fig. 4. During the nineties there was a change in the methodology used for computation of poverty line. In order to eliminate possible differences in reported poverty ratios due to the changed methodology, the Approach Paper to the Eleventh Plan has computed and presented the poverty ratios for 2004-2005 according to both the methodologies. These revised data suggest that the decline in poverty in the nineties is not as high as reported earlier. These data indicate that acceleration in economic growth rate has not resulted in an acceleration in decline in poverty.

Inter-State differences in per capita net State product and poverty ratios are shown in Fig. 5. In most of the States with high net state product, poverty ratio is low and vice versa. However, there are exceptions like Jammu & Kashmir (J&K) and Himachal Pradesh where poverty ratios are low inspite of low per capita net State product. Maharashtra has relatively high poverty ratios in spite of high per capita net State product. Thus State per capita income is an important but not the only determinant of poverty rates in the State.

There are wide inter-States differences in terms of increase in per capita income and in terms of poverty reduction. In 1983, more than 50 per cent of the population in Orissa, Bihar, West Bengal and Tamil Nadu were living below the poverty line. By 2000, in West Bengal and Tamil Nadu the poverty ratios declined by half but Orissa and Bihar continued to be the poorest states with nearly half of their population being below poverty line. J&K, Himachal Pradesh, Haryana, Andhra Pradesh, Punjab and Maharashtra are the other States which have achieved significant decline in prevalence of poverty (Fig. 6). The difference in rates of decline in poverty has resulted in widening of the gap between States; for instance poverty ratio in Orissa is eight time higher than the poverty ratio in Punjab. The differences in per capita income and poverty ratios between States may have to be considered while assessing factors responsible for the inter-State differences in nutritional status of children.
Consumption expenditure on food

Focus on development of agriculture in the first five Plan periods and the technological inputs during green revolution enabled the country to become self-sufficient in food production during the seventies. Adequate buffer stock of food grains and the public distribution system (PDS) ensured access to food grains at a subsidised cost. These measures had a beneficial impact on consumption and expenditure on food. Time-series data of expenditure on food and non-food items from NSSO surveys are given in Fig. 7. Between 1972-1973 and 2004-2005, the share of food in total consumer expenditure has fallen from 73 to 55 per cent in rural areas and from 64 to 42 per cent in urban areas. The decline in expenditure on food is mainly due to low cost of cereals (especially those provided to the poor under PDS) which are the major source of energy in Indian diets. The share of cereals has fallen from 41 per cent of consumer expenditure to 18 per cent in rural India and from 23 to 10 per cent in urban India.

NSSO computes the quantity of cereal, pulse, vegetable and other food items purchased by households and per capita energy consumption from the consumer expenditure survey. Over years there has been a reduction in cereal intake among the middle and high-income groups, reduction in pulse consumption and increase in oil consumption in all income groups.

Data from NSSO surveys indicate that over the last four decades the overall calorie and protein intake in rural areas has shown a small decline; dietary intake in urban areas has remained unaltered. Fat intake has gone up both in urban and rural areas (Figs 8-10). When the data were analysed by income (Fig. 11), the calorie intake has shown a small increase in both urban and rural poor and a decline among the urban and rural rich. In urban areas, the variation in consumption over the years is much smaller. The food grains and other food stuffs are readily available, accessible and affordable (often at subsidised cost to the poor); therefore reduction in cereal and energy intake cannot be due to poverty. It is likely that the reduction in energy intake, especially among the middle and high income groups is due to

Fig. 6. Percentage of population in poverty in States during 1999-2000 in comparison to 1973-74 (Bottom five & top five States). Source: Ref. 2
Figure was taken from the Tenth Plan document. It is available in the web site and is a public domain document.

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Figure was taken from the Tenth Plan document. It is available in the web site and is a public domain document.

Fig. 7. Time trends for % expenditure on various food items as share of total expenditure - NSSO. Source: Ref. 9
Figs. 7-11 have been prepared based on the data on different consumer expenditure surveys over years based on NSSO survey reports for these survey rounds.
changes in lifestyle and reduction in physical activity and consequent reduction in energy requirement; this hypothesis is supported by the rise in overnutrition rates in the last fifteen years in these segments of population.

Inter-State differences in cereal intake and undernutrition rates (NFHS-3) provide some insights into the current relationship between energy intake and nutritional status (Fig. 12). In some States such as Orissa, Assam and Rajasthan, despite high cereal intake and undernutrition rates among women, insulin resistance might be due to higher levels of physical activity during occupational or household activities in women. Inspite of low cereal intake, undernutrition rates in women in Kerala are low, perhaps because physical activity levels in these women are lower due to ready access to water, fuel, and transport. These data suggest that in addition to dietary intake, physical activity pattern is becoming one of the major determinants of the nutritional status.

The NSS Household Consumption Expenditure data for 1999-2000 indicate that the actual calorie intake of the poverty-line class in every State and in both rural and urban areas is significantly below the calorie norm (except in urban Orissa). However, data from NSSO clearly show that the actual cost per calorie consumed varies widely between different income groups in every State in both the rural and urban areas. NSSO data suggest that in each State there exists a food basket which is actually consumed by a large proportion of people and which yields much higher calories per rupee spent on food. If the poverty-line class were to consume this particular basket, it would be able to meet the calorie norms with its actual expenditure on food.
These data suggest that apparent low energy consumption is not so much the result of a lack of income or purchasing power, but of the choice of a food basket by the below poverty line (BPL) population.

**Dietary intake and nutrition status of preschool children**

India recognized that preschool children are one of the most nutritionally vulnerable segments of the population and therefore invested in the Integrated Child Development Services (ICDS) aimed at prevention, early detection, prompt and effective treatment of undernutrition in preschool children. ICDS is perhaps the largest and the most sustained food supplementation programme in the world. Inspite of these efforts, nearly half of the Indian children are underweight; underweight rates in Indian children are far higher not only as compared to countries with similar level of economic development but also those with far lower economic development such as sub-Saharan Africa. Though underweight rates in India are higher than that of Sub-Saharan Africa, under five mortality rates and morbidity rates in children in India are much lower - the so called South Asian enigma. Efforts should be made to solve the South Asian enigma. Several factors are responsible for high undernutrition in India. Some of these are related to poverty and poor access to nutrition and health care and could be remedied within a short period. There are others which are unrelated to current deprivations and could not be readily corrected. It is essential that the factors amenable for correction are identified and interventions to correct them initiated.

**Factors associated with undernutrition in children**

India has the dubious distinction of having a very high prevalence of low birth weight (LBW). Estimates based on available data from institutional deliveries and smaller community-based studies suggest that even now nearly one-third of all Indian infants weigh less than 2.5 kg at birth. Studies carried out by Ghosh and co-workers in the seventies have shown that LBW children have a low trajectory for growth in infancy and childhood (Fig. 13).

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**Table II. Potential calorie intake of poverty-line class in different States**

<table>
<thead>
<tr>
<th>State</th>
<th>Rural Calories per day</th>
<th>Rural Percentage of Norm (2400)</th>
<th>Urban Calories per day</th>
<th>Urban Percentage of Norm (2100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>2424</td>
<td>101</td>
<td>2457</td>
<td>117</td>
</tr>
<tr>
<td>Assam</td>
<td>2258</td>
<td>94</td>
<td>1481</td>
<td>71</td>
</tr>
<tr>
<td>Bihar</td>
<td>2252</td>
<td>94</td>
<td>2605</td>
<td>124</td>
</tr>
<tr>
<td>Gujarat</td>
<td>2197</td>
<td>92</td>
<td>2069</td>
<td>99</td>
</tr>
<tr>
<td>Haryana</td>
<td>2311</td>
<td>96</td>
<td>1526</td>
<td>73</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>2714</td>
<td>113</td>
<td>2277</td>
<td>108</td>
</tr>
<tr>
<td>Karnataka</td>
<td>2304</td>
<td>96</td>
<td>2682</td>
<td>128</td>
</tr>
<tr>
<td>Kerala</td>
<td>1456</td>
<td>61</td>
<td>2004</td>
<td>95</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>2584</td>
<td>108</td>
<td>2360</td>
<td>112</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>2326</td>
<td>97</td>
<td>2451</td>
<td>117</td>
</tr>
<tr>
<td>Orissa</td>
<td>2507</td>
<td>104</td>
<td>2720</td>
<td>130</td>
</tr>
<tr>
<td>Punjab</td>
<td>2266</td>
<td>94</td>
<td>2183</td>
<td>104</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>3016</td>
<td>126</td>
<td>2561</td>
<td>122</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>2215</td>
<td>92</td>
<td>2050</td>
<td>98</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>2266</td>
<td>94</td>
<td>2027</td>
<td>97</td>
</tr>
<tr>
<td>West Bengal</td>
<td>2633</td>
<td>110</td>
<td>2089</td>
<td>99</td>
</tr>
</tbody>
</table>

Source: Ref.6

---

Fig. 13. Growth in relation to birth weight in infants.
Other major factors that influence infant growth are adequacy of infant feeding and absence of infection. National surveys (National Nutrition Monitoring Bureau, NNMB; National Family Health Survey, NFHS; and District Level Household Survey, DLHS) have shown that in India, steps taken for the protection and promotion of the practice of breast-feeding have been effective and breast-feeding is almost universal. However, the message that exclusive breast-feeding up to six months and gradual introduction of semisolids from six months are critical for the prevention of undernutrition in infancy, has not been effectively communicated. Data from NFHS-3 indicate that though breast-feeding was nearly universal and mean duration of lactation was over 2 yr, exclusive breast-feeding among infants in the age group of 0-6 months continues to be low. In spite of all the information, education and communication (IEC) efforts on the need for timely introduction of complementary food, only about half the children in the age group of 6-9 months receive semisolid food. The inappropriate feeding practices are seen in all income groups and are not related to poverty. As a result of poor infant feeding and caring practices undernutrition rates continue to be high in the 0-3 yr age group (Fig. 14). There has been some reduction in underweight rates between NFHS 1 and 2 but there has been not much change between NFHS 2 and 3. There were small but inconsistent differences in the wasting rates between the three surveys (Fig. 15). The continued inappropriate infant and young child feeding and poor access to health care rather than poverty appear to be responsible for the relatively slow reduction in undernutrition rates between the three NFHS surveys.

Data from surveys carried out by National Nutrition Monitoring Bureau (NNMB) on dietary intake in preschool children between 1975 and 1996 (Table III) show no substantial improvement in their dietary intake over the last two decades. Data on energy intake in children, adolescents and adults from NNMB survey (2000) showed (Table IV) that mean energy intake, as percentage of RDA is the least among the preschool children, though their requirement is the lowest and the gap between RDA and actual intake is highest in preschool children. However, in the same families adults whose energy requirement are highest get nearly adequate energy intake. Young children have small stomach capacity; they have to be fed 5-6 times a day if adult food with low energy density...
is given to them. It would appear that problems in feeding a young child with predominantly adult food (rather than poverty) is the major factor responsible for low dietary intake in preschool children.

Table III. Average nutrient intakes among pre-school children

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein (g)</td>
<td>22.8 23.7 20.9</td>
<td>30.2 33.9 31.2</td>
</tr>
<tr>
<td>Energy (Kcal)</td>
<td>834 908 807</td>
<td>1118 1260 1213</td>
</tr>
<tr>
<td>Thiamin (mg)</td>
<td>0.50 0.52 0.40</td>
<td>0.76 0.83 0.70</td>
</tr>
<tr>
<td>Riboflavin (mg)</td>
<td>0.38 0.37 0.40</td>
<td>0.48 0.52 0.60</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>5.08 5.56 4.60</td>
<td>7.09 8.40 7.40</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>15 14 15</td>
<td>20 23 25</td>
</tr>
</tbody>
</table>

Source: Ref. 12

Table IV. Mean energy consumption- children/adolescents and adults

<table>
<thead>
<tr>
<th>Age group</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kcals</td>
<td>RDA % RDA</td>
</tr>
<tr>
<td>Pre-school</td>
<td>889</td>
<td>1357</td>
</tr>
<tr>
<td>School age</td>
<td>1464</td>
<td>1929</td>
</tr>
<tr>
<td>Adolescents</td>
<td>2065</td>
<td>2441</td>
</tr>
<tr>
<td>Adults</td>
<td>2226</td>
<td>2425</td>
</tr>
</tbody>
</table>
| RDA, recommended dietary allowance
Source: Ref. 12

Time trends in intra-familial distribution of food (Fig. 16) indicate that while the proportion of families where both the adults and preschool children have adequate food has remained at about 30 per cent between 1975 and 1996, the proportion of families with inadequate intake in adults and children has come down substantially. However, the proportion of families where the preschool children receive inadequate intake while adults have adequate intake has nearly doubled. This is in spite of the fact that the RDA for preschool children forms a very small proportion (on an average 1300 kcal/day) of the family’s total intake of around 11000 kcal/day (assuming a family size of 5). These data confirm that in the last decade more than poverty, poor young child feeding and caring practices were responsible for inadequate dietary intake in preschool children.

Table IV. Mean energy consumption- children/adolescents and adults

Time trends in nutritional status of preschool children from surveys carried out by the NNMB and NFHS are shown in Figs 17 and 18. Though there was no increase in the dietary intake, there has been a decline, especially in severe undernutrition as assessed by weight for age.
and height for age. Improved access to health care and reduction in nutritional and toll of infections appear to be the major factors responsible for the decline in severe undernutrition. However, over the same period there has not been any decline in wasting rates. One of the major problems faced by nutritionists is choosing the index best suited for assessment of nutritional status in children. With the emergence of dual nutrition burden there has been an increasing emphasis on use of wasting /BMI for age as the preferred index for assessment of nutritional status in children. It is noteworthy that even among the top quintiles among whom deprivations are very unlikely, the prevalence of underweight is over 30 per cent; the difference in underweight rates between the highest and the lowest quintile groups is less than 30 per cent.

DLHS data on prevalence of undernutrition (WHO (2006) <-2SD weight for age) in relation to standard of living index is given in Fig. 19. Over half of the children from the low income group are undernourished. This could be related to poor feeding and caring practices. But the fact that over a third of preschool children from households with high standard of living are undernourished suggests that factors other than poverty and poor access to services play an important role as determinants of undernutrition in preschool children.

Recognizing the potential linkages between child undernutrition and human development, UN have included child undernutrition as one of the indices for computation of human poverty index for measuring deprivation in developing countries. Human poverty index is a composite index which takes into account the probability at birth of not surviving to age of 40, adult literacy rates, and population without sustained access to improved water source and children underweight for age. Available data indicate that in India undernutrition exists even in the absence of socio-economic deprivation. It is essential to undertake in depth investigation on the relationship between undernutrition in children (<-2SD of weight-for-age, height-for-age and BMI-for-age) and poverty and deprivation in India.

**Dietary intake and nutritional status of adults**

Time trends in national per capita income (Central Statistical Organization, CSO) and energy intake from NNMB surveys are indicated in Fig. 20. In the fifties poverty and lack of purchasing power was the major determinant of low energy intake. The substantial increase in per capita income in the nineties has in fact been associated with a small reduction in energy intake; changed life style and reduction in energy requirement rather than lack of purchasing power appears to be responsible for this decline in energy intake.

Data on inter-state differences in per capita net state product (CSO) and energy intake from diet surveys conducted through NNMB/India Nutrition Profile (INP) (Fig. 21) show that some States like Delhi and Punjab have high per capita income and high energy intake. However, energy intake is quite high in States like Bihar and Orissa with low income.
Data on inter-State differences in energy intake and prevalence of undernutrition in adults from NNMB and INP surveys carried out in the mid nineties (Fig. 22) show that in spite of high energy intake, undernutrition in adults is high in States like Bihar, MP, and Rajasthan. This is perhaps because in these States occupational or household chores related physical activity is high and the energy intake is insufficient to meet the needs among poor segments of population.

Time trends in nutritional status of adults from NNMB surveys are shown in Figs 23 and 24. Though there has not been any increase in dietary intake, a reduction was seen in undernutrition rates and an increase in overnutrition rates. These changes might be due to reduction in physical activity over the last three decades.

Data from NFHS 3 on under- and over-nutrition rates in men and women in different States bring out some interesting findings on nutritional status of adults (Figs. 25, 26). Undernutrition rates are high and overnutrition rates are low in States like MP, Orissa, UP and Bihar. Undernutrition rates are low and overnutrition rates are high in States like Delhi, Punjab and Kerala. However, in this survey a new category is emerging: in Tamil Nadu, Karnataka, Andhra Pradesh, Gujarat and Maharashtra where both under- and over-nutrition are common. It is noteworthy that in all States both under- and over-nutrition is more common in women. Increasing disparity in dietary intake and physical activity between different segments of population, poverty and affluence appear to be responsible for the emergence of this dual nutrition burden.
Conclusions

Three major groups of experts—economists, nutritionists and health professionals have been closely involved in exploring the inter-linkages between poverty, food intake and nutritional status. In the last decade a new scenario has emerged in which some of the past associations seem to have undergone alterations. There is a rapid economic growth without steep decline in poverty rates. Despite adequate food availability at affordable cost, there has been reduction in food/energy intake. In spite of sustained interventions to prevent and combat child undernutrition there has not been substantial reduction in child undernutrition rates; a third of preschool children even in high income families are underweight. As there has been a substantial reduction in physical activity in all segments of population, overnutrition is emerging as a public health problem in all age groups.

Economists are concerned that the current value of the poverty line based on 1973 consumption expenditure may not permit the poverty line class to consume food according to the calorific norm after other essential expenditures needed, because over the years there have been changes in consumption expenditure patterns. But all such changes may not be appropriate or desirable; for
example, the increase in consumption of fats and oil, beverages and tobacco are certainly not desirable from health and nutrition point of view. Nutritionists and health professionals will not like to recommend that these should be taken into account while defining poverty line.

Nutritionists are worried that the Tenth Plan paradigm shift from mere food security to nutrition security has not got reflected in the definition of poverty line as “access to basket of foods which can provide the balanced diet with adequate macro- and micronutrients”. They would prefer the consumer expenditure of lowest income class consuming balanced meal containing adequate pulses and vegetable be used to define poverty line, as this would result in substantial reduction in micronutrient deficiencies and also have some protective effect on emerging non-communicable disease burden. The nutritionists are also concerned about the appropriateness of the currently used indices for assessment of nutritional status in children in the era of dual nutrition burden; many favour increasing use of BMI as the most appropriate indicator of nutritional status in all age groups.

The health professionals are bothered that the existing calorie norm does not take into account the alterations in life style and physical activity pattern over the last three decades. In 2004 Food and Agricultural Organization (FAO)/WHO/United Nations University (UNU) published the recommendations regarding energy requirements based on data on actual energy expenditure[14]; the recommended energy intake levels are far lower than the earlier recommendations. As India has already entered the dual nutrition burden era, public health experts would prefer to see reduction in energy intake especially empty calories from oils, fats and beverages so that there is reduction in the risk of overnutrition and non-communicable diseases.

Obviously, there is an urgent need to review the current scenario and linkages between economic growth, poverty, dietary intake and nutritional status. Such a review would help in identifying appropriate interventions to strengthen positive linkages and break negative linkages.

References


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