

## **Malnutrition – Incidence and Impact (A Comparative Study of Four Southern States in India)**

<sup>1</sup>, Dr.K.Padma

<sup>1</sup>, Associate Professor Visakha Govt. Degree College (W) Visakhapatnam-20, 530020.

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**SHORT ABSTRACT:** *Forty two percent of Indian children below five years are malnourished and 59 percent suffer from stunted growth.*

**LONG ABSTRACT:** *The present paper aims to study the incidence of malnutrition among the four southern states in India. It applies capability approach developed by A.K Sen. along with Nussbaum to assess the impact of malnutrition on child well-being. Well being is what people can do (capabilities) as opposed to what they actually do. Besides, we calculate BCI (Basic Capability Index) to compare the performance of the four states in building the capabilities of the children. Malnutrition prevents from building basic capabilities among children. The BCI is critical, low or medium with in the country and among the southern states. The paper also reviews ongoing nutritional programmes and their effectiveness in containing malnutrition and suggests alternative measures.*

**KEY WORDS:** *Malnutrition, incidence, impact, capabilities, poverty*

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### **I. INTRODUCTION:**

India is one of the emerging economies of the world. It is second fastest growing country in the world. India's growth rate of Gross Domestic Product touched near double-digit figure in the last two decades of reforms. This raised the expectations of many with regard to the India's development. This is one side of the India's development coin. The other side of the India's development coin is human development. In the years of 'shining India', in the years when tens of its people were listed in Forbes Magazine as among the richest persons in the world, it is appalling that the prevalence of anemia in children in the age group 6-59 months has increased from 74 per cent in NFHS II (1999-98) to 79 percent in NFHS III (2005-06). The performance of India in terms of human development is distressing. India's HDI rank slipped from 127 in 2007 to 134 in 2011. India ranks 66 out of 88 countries according to Global Hunger Index, 2008. This implies persistence of poverty and malnutrition in the country, which means negation of the opportunity to develop potential capabilities for large sections of the people. Considerable variation observed in nutritional status of children under five years between northern and southern states in India. Southern states are performing comparatively better than the northern states in India. This prompted to study the nutritional status of under five year's children among the southern states and the causes for variation

### **II. OBJECTIVES:**

It is disheartening to note that though India has made significant improvement in growth rate, the country has failed to achieve similar stride in Human development front. Human development occupied centre stage in development studies, particularly after the introduction of HDI concept by Mahabub Hul Haq and A.K.Sen defining development as expanding opportunities and creating capabilities to make rational choice. A.K.Sen's theory, which was developed in conjunction with Martha Nussbaum, has at its core, the idea that what people can do (capabilities) as opposed to what they actually do (functioning's) should be the focus of well being evaluations and government policy (Paul Anand,2004). Martha Nussbaum provided ten items, which according to her are essential for a good life (Nussbaum, 2003).

The objectives of the present study are:

- 1) To find magnitude and severity of malnutrition among children under five in India and to compare the incidence of malnutrition among the four southern states namely Andhra Pradesh, Karnataka, Kerala and Tamil Nadu,
- 2) To assess the impact of malnutrition on children's capability,
- 3) To discuss the effectiveness of nutrition programs implemented by the Government,
- 4) To suggest alternatives to improve the well-being of children and thereby to reduce malnutrition

### III. Methodology:

The present study draws data from NFHS-3 Report for analysis and discussion. The present paper also relies on various other secondary sources for analysis and drawing conclusions. The present paper chooses three out of the ten capabilities enlisted by Nussbaum for analyzing the impact of malnutrition on well-being of children. Denial of well-being means denial of opportunity to develop one's own capabilities. The selected three capabilities – Life, Bodily health and senses imagination and thought inversely related with malnutrition. Malnutrition affects children's life, health, senses imagination and thought at early years of life, and thereby denies an opportunity to these children to develop their potential capabilities. Basic capability index calculated to compare the performance of the four states in building the capabilities of the children. Effort made to identify the possible causes for the persistence of malnutrition among the children in spite of implementing various programs by the government to eradicate it. Some alternatives to overcome the problem and thereby improve the well-being of the children suggested.

### IV. DEMOGRAPHIC FEATURES:

#### 4.1. A Growth Rate of population:

The decennial Growth Rate of Population in 1991-2001 was 21.54 per cent in India. The decennial growth rate of population in India during 2001-2011 was 17.64 per cent. The average annual exponential growth rate of population in 1991-2001 was 1.97 per cent and it declined to 1.64 percent in 2001-2011. The growth rate of population is not uniform across various states in India. The annual growth rate of population in Southern states like Andhra Pradesh, Karnataka, Kerala and Tamil Nadu is lower than that of India. (See Table. 1)

Table no.1 Growth rate of population in Southern Indian States

S. no	India/State	Decennial Growth Rate (%)		Average Annual Exponential Growth Rate (%)	
		1991-2001	2001-2011	1991-2001	2001-2011
	India	21.54	17.64	1.97	1.64
1	Andhra Pradesh	14.59	11.10	1.37	1.06
2	Karnataka	17.51	15.67	1.63	1.47
3	Kerala	9.43	4.86	0.90	0.48
4	Tamil Nadu	11.72	15.60	1.11	1.46

Source: Census of India 2011.

#### 4.2. B Rural and Urban Composition of population:

31.16 percent of the total population is living in urban India according to 2011 census. The rural population in India constitutes 68.8 percent according to 2011 census. The decennial growth rate of rural population in India has declined from 17.90 percent in 2001 to 12.18 percent in 2011. However, the decennial growth rate of urban population marginally increased from 31.20 percent in 2001 to 31.80 percent in 2011. Urbanization took place at rapid strides in India during the decade 2001-2011. The decennial growth rate of population in urban areas is much higher than that of the rural areas in India during the period 2001-11. The decennial growth rate of population in rural areas is negative Kerala. The decennial growth rate of population in rural areas in Andhra Pradesh lower compared to the decennial population growth rate in rural areas in Karnataka and Tamil Nadu. (See Table. 2)

Table 2: Rural and Urban composition of Population Census2011

S. No	India/state	% of Urban Population to Total Population		Decennial Growth Rate of Population(Percent)					
				2001			2011		
		2001	2011	Total	Rural	Urban	Total	Rural	Urban
	India	27.81	31.16	21.54	17.90	31.20	17.64	12.18	31.80
1	Andhra Pradesh	27.30	33.49	14.59	13.60	14.60	11.10	1.64	36.26
2	Karnataka	33.99	38.51	17.51	12.10	28.80	15.67	7.63	31.27
3	Kerala	25.96	47.72	9.43	10.10	7.60	4.86	-25.96	92.72
4	Tamil Nadu	44.04	48.45	11.72	-5.20	42.80	15.60	6.49	27.16

Source: Census of India 2011

#### 4.3. C Child population in the age group 0-6:

India has 158.7 million children in the age group 0-6 years. They constitute 13.12 percent of the total population. The male and female children are 82.9 million and 75.8 million respectively according to 2011 provisional figures. Andhra Pradesh has larger child population compared to other three southern states in India. Kerala has lower child population among the four southern states in India. Karnataka and Tamil Nadu have same quantum of child population (Table3).

Table3: Child Population in the Age Group 0-6 by Sex-2011(Millions)

S. No	India/State	Persons	Males	Females	Percentage of child population
	India	158.7	82.9	75.8	13.12
1	Andhra Pradesh	8.6	4.4	4.2	10.21
2	Karnataka	6.8	3.5	3.3	11.21
3	Kerala	3.3	1.7	1.6	9.95
4	Tamil Nadu	6.8	3.5	3.3	9.56

Source: Census of India, 2011

#### 4.4. D Child Sex Ratio:

Child sex ratio indicates the number of female children per 1000 male children. The trend in the child sex ratio in the age group 0-6 years is cause of concern because it is declining not only at all India but also in many states of the country. Similar pattern found also in southern states. Except in Tamil Nadu in the other three southern states, child sex ratio (0-6) declined. In Tamil Nadu it improved by 4 points. The decline in child sex ratio in the age group 0-6 years is significant in Andhra Pradesh. It is more than the decline at all India (Table4)

Table4: Trends in child Sex Ratio (0-6) 2001&2011

S. no	India/State	2001	2011	Change
1	Andhra Pradesh	961	943	-18
2	Karnataka	946	943	-3
3	Kerala	960	959	-1
4	Tamil Nadu	942	946	+4
	India	927	914	-13

Source: Census of India, 2011

#### 4.5. E Literacy rate:

Literacy rate in India according to 2011 census is 74.04 percent. The male and female literary in India is respectively 82.14 and 65.46 percent in 2011. According to 2011 census Kerala attained 93.91 percent literary. Among the southern states, the performance of Andhra Pradesh in literacy front in comparatively low. The total literacy rate in the state according to 2011 census is 67.66 percent. Female literacy is much lower. It is 59.74 per cent (See Table. 5).

Table5: State wise literacy rate in India.

S. No	India/ state	2011		
		Literacy rate (percent)		
		Persons	Males	Females
	India	74.04	82.14	65.46
1	Andhra Pradesh	67.66	75.56	59.74
2	Karnataka	75.60	82.85	68.13
3	Kerala	93.91	96.02	91.98
4	Tamil Nadu	80.33	86.81	73.86

Source: Census of India, 2011

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## V. Incidence of Malnutrition

Various agencies studied about the incidence of malnutrition across the countries and states within a country. National Nutrition Monitoring Bureau estimated that 17 percent of children below 5 years of age suffered from severe malnutrition linked to a weight deficit of over 40 percent in India in 1989.

UNICEF data for 1991 indicated that 45 percent of children below 5 years were suffering from moderate malnutrition with a weight deficit ranging from 25-45 percent. According to UNICEF information for the year 1997, 65 percent of the Indian infants in the age group 6-36 months suffered from stunted growth, which was largest among the South Asian countries. 59 percent of Indian infants in the age group 6-36 months were under weight. Bangladesh is the only country among the South Asian countries, which fared worse, compared to India, according to this indicator. Nearly 50 percent of under five years children are stunted and 43 percent are under weight. 24 percent according to height for age and 16 percent according to weight for age, among the under five year's children are malnourished /undernourished in India. Wasting is also a serious problem in India, affecting 20 percent of children under five years of age.

Forty-eight per cent children in India are chronically malnourished and 23.7 per cent children are severely malnourished. 19.8 per cent children in India are wasted. Severely wasted children in India are 6.4. Similarly, the percentage of underweight children in India is 42.5. The severely underweight children constitute 15.8 per cent. The southern states in India perform better compared to all India in nutritional status of children. Among the southern states, Kerala outperforms others in nutritional status of the children. Tamil Nadu performs better compared to the Andhra Pradesh and Karnataka. Performance of Karnataka is poor among all the southern states in India. Severe wastage is less in Andhra Pradesh compared to other southern states. Prevalence of severely underweight children is more in Karnataka compared to other states in south India (Table6).

Table 6: Nutritional status of children by state

State	Height for age		Weight for height		Weight for age	
	Percentage of below		Percentage of below		Percentage of below	
	-3SD	-2SD	-3SD	-2SD	-3SD	-2SD
India	23.7	48.0	6.4	19.8	15.8	42.5
Andhra Pradesh	18.7	42.7	3.5	12.2	9.9	32.5
Karnataka	20.5	43.7	5.9	17.6	12.8	37.6
Kerala	6.5	24.5	4.1	15.9	4.7	22.9
Tamil Nadu	10.9	30.9	8.9	22.2	6.4	29.8

Source: NFHS iii, 2005-06, P.273

Under the circumstances let us look at the impact of the malnutrition on the wellbeing and capability of the under-five year's children in India.

## VI. IMPACT OF MALNUTRITION:

**6.1 Life:** Life provides an opportunity to unleash potential capabilities within the individual. It enables an individual to lead life as a complete human being but also enables the country to reap benefits from the optimal utilization of human resources. Denial of life is not only a loss to the individual but also to the country at large. Malnutrition often results in loss of life at infancy and before completion of five years of age. Besides malnutrition, social prejudices are also taking the toll of the life of female children under five years and thereby denying an opportunity to lead complete life to build their capabilities. Therefore, infant mortality, under-five mortality and child sex ratio considered to make a comparison of well-being of children in four Southern states and with India.

**a) Infant Mortality Rate:** Infant mortality rate measures the number of infants who die before the completion of one year for thousand live births. Among the four Southern states, Infant Mortality Rate is high in Andhra Pradesh and least in Kerala. Infant Mortality Rate in Andhra Pradesh is almost comparable to that of India. Infant Mortality Rate in India is 50. The infant Mortality Rate in Kerala and Tamil Nadu is respectively 12 and 28. The infant mortality rate in Kerala is almost on par with the advanced countries of the world. The Infant Mortality Rate in Andhra Pradesh and Karnataka is respectively 49 and 41 (Table.7).

**b) Under – five years mortality:** Under-five mortality rate measures the number of children die before completion of five years for 1000 under-five year's children. The under-five mortality rates all India and among the four southern states given in Table.7. Under-five year's children mortality rate at all India level is 64. Under-five year's children mortality in the four Southern states is lower than the under-five mortality rates at all India

average. The under- five years children's mortality is lowest in Kerala followed by Tamil Nadu among the Southern states. The under –five mortality rate in Kerala and Tamil Nadu is respectively 16.3 and 35.5. The under-five mortality is highest in Andhra Pradesh followed by Karnataka among the Southern states.

The under-five mortality rate in Andhra Pradesh and Karnataka is respectively 63.2 and 54.7 (See Table.7). This shows that a large number of children are losing their life before infancy and before completion five years of age in Andhra Pradesh and Karnataka. As a result, they denied of right to life and they could not utilize their full potential and hence denied of opportunity to build their capabilities.

**c) Sex-ratio in the age group 0-6 years:** Though there is no much difference in the under nutritional status between boys and girls, in contrast to the naturally observed factors, it is found out a declining trend in the child sex ratio in India. The child sex ratio in the age group 0-6 years declined from 927 in 2001 census to 914 in 2011 census in India. The child sex ratio declined in three southern states in 2011 compared to 2001 census. In Tamil Nadu, the child sex ratio in the age group 0-6 years improved marginally from 942 in 2001 to 946 in 2011. Though Kerala proved better in comparison to other three states in South India, what is worrying is that the favorable adult sex ratio at present in the state may turn into adverse sex ratio in future. The child sex ratio in Kerala declined from 960 in 2001 to 959 in 2011. The child sex ratio in Karnataka declined from 946 in 2001 to 943 in 2011. The child sex ratio in Andhra Pradesh declined from 961 in 2001 to 943 in 2011. (See Table.7)

Besides malnutrition, social factors are also operating to cause loss of life for the young girls and there by denying an opportunity to unleash their potential capabilities. Prevalence of son preference in the Indian society causing to abort female fetus once the sex of the fetus is determined. The decline in child sex ratio is significant in Andhra Pradesh in comparison to other southern states in India. Therefore, girl children are not only losing their right to life but also their capacity to build their capabilities in future

**6.2. Bodily health:** One of the variables determining health is nutritious food. Under nutrition not only impairs children's physical growth but also retards their future productivity and capabilities. The anthropometric indicators considered to assess the impact of malnutrition on growth of the children in India as well as in four Southern states.

Table.7 shows the nutritional status of children in the age group 0-5 years. Forty eight percent of children stunted in India, which indicates that children are chronically malnourished. 19.8 percent children are too thin for their height; indicating thereby acute malnourishment of these children. 42.5 percent is underweight for their age. Thus, all the three anthropometric indicators show persistence of acute and chronic malnourishment among the children in the age group (0-5) years. Malnourishment prevails among the children (0-5) years in the four Southern states. However, Kerala and Tamil Nadu perform better compared to Andhra Pradesh and Karnataka. Chronic malnutrition is high in Andhra Pradesh and Karnataka compared to Kerala and Tamil Nadu. The chronic malnutrition in Andhra Pradesh and Karnataka is respectively 42.7 percent and 43.7 percent, whereas the chronic malnutrition in Kerala and Tamil Nadu is respectively 24.5 percent and 30.9 percent. Stunting among 0-5 years children is low in all the four Southern states compared to all India. (See Table.7) Wastage in 0-5 year's children is more in Tamil Nadu compared to All India figure. The percentage of wastage in 0-5 year's children is 22.2 in Tamil Nadu, whereas it is 19.8 percent at the All India level. Andhra Pradesh, Karnataka and Kerala have lesser wastage than all India average in 0-5 year's children. The percentage of wastage in 0-5 year's children in Andhra Pradesh, Karnataka and Kerala is respectively 12.2, 17.6 and 15.9. (See Table.7)

Underweight is prevalent among 0-5 year's children in all the four Southern states. The prevalence of underweight among 0-5 year's children is lowest in Kerala and highest in Karnataka among the four Southern states. The percentage of underweight children among 0-5 years in Kerala is 22.9 and 29.8 percent of children in 0-5 year's age group are underweight in Tamil Nadu. The same for Karnataka is 37.6. The underweight children in 0-5 year's age group in Andhra Pradesh are 32.5 percent. 42.5 percent in 0-5 year's age group children are underweight at all India. (See Table.7) So, the performance of Southern states better compared to all India. Stunting, wastage and under weight of children reduce their future productivity and well-being by succumbing them to frequent illness. Andhra Pradesh, Karnataka and Tamil Nadu have larger proportion of stunted, under weight and wasted children respectively. Hence, children in these states denied of opportunity to build their future capabilities.

**6.3 Senses Imagination and Thought:** Primary education enhances one's ability to imagine and think over issues concerning oneself and the nation. Therefore, primary education enables one to take rational decisions. Basic education is essential for one to grow into good citizen. Many studies have proved that the primary education increases the productive capacity of an individual and his earning capacity. Thus, primary education is indispensable for a person to grow into a complete human being. Malnutrition denying health and wellbeing to an individual succumbs to frequent illness, causes one to remain absent from work or school very often and it is also an important factor to make one disinterested in work or studies, which results in dropping –out from

school and thereby denies an opportunity to build one's capabilities in life. Malnutrition is one of the many factors responsible for persistence of dropping-out of children in the age group 6-11 years in our country. This is not only denying an opportunity to achieve universal primary education, the goal enshrined in our constitution, but also capacity to build productivity and hence growth in national income.

Table.7 shows the dropout rate of children at primary school. The primary school dropout rate at all India is 10.64. Andhra Pradesh has high dropout rate at primary school compared to all India and the Southern states. The dropout rate in Andhra Pradesh is 22.43. The dropout rate is lowest in Kerala followed by Tamil Nadu. The primary school dropout rate in Kerala is 2.30 and in Tamil Nadu 3.17. The primary school dropout rate in Karnataka is 5.61. Chronic malnutrition among the children in Andhra Pradesh may be the reason for persistence of high dropout rate in the state. Thus, it denies the children under five years of age in the state to build their potential capabilities compared to other three states in the south India.

Table.7 Impact Analysis:

State col.1	IMR Col.2	Under-Five Mortality Rate Col.3	Sex-Ratio Col.4		Height for age Col.5	Weight for height Col.6	Weight for age Col.7	Primary School children drop-out rate Col.8
			2001	2011				
Andhra Pradesh	49	63.2	961	943	42.7	32.5	12.2	22.43
Karnataka	41	54.7	946	943	43.7	37.6	17.6	5.61
Kerala	12	16.3	960	959	24.5	22.9	15.9	2.30
Tamil Nadu	28	35.5	942	946	30.9	29.8	33.2	3.17
All India	50	64.0	927	914	48	42.5	19.8	10.64

Source: Column2 -Office of the Registrar General of India  
 Column3-NFHSIII, 2005-06  
 Column4-Census of India 2011  
 Column5, 6, 7-NFHSIII, 2005-06.

Column8-Drop-out Rate at Primary level: A note based on DISE 2003-04 & 2004- 05 data, National Institute of Education Planning & administration, 17-B, Sri Aurobindo Marg, New Delhi-110016(India).

Basic capability index measured to understand the impact of malnutrition on building capability of the nation as well as the four Southern states. The situation is grim not only at all India but also in Andhra Pradesh and Karnataka. Kerala and Tamil Nadu measure better compared to Andhra Pradesh and Karnataka. Neither India nor states in South exhibit high basic capability Index. Basic Capability Index for India is 53.06. BCI for Andhra Pradesh and Karnataka is 65.93 and 67.86 respectively. BCI for Kerala and Tamil Nadu is 93.6 and 85.05 respectively. Kerala and Tamil Nadu show medium and low level of BCI respectively. (See Table 8)

Table8. Measuring Basic Capability Index

State col.1	Under five mortality Col.2	Rate of school retention Col.3	Births attends by skilled personnel Col.4	BCI Col.5	Interpretation of BCI Col.6
India	64	74.9	48.3	53.06	Critical
Andhra Pradesh	63.2	83.9	77.1	65.93	Critical
Karnataka	54.7	86.7	71.6	67.86	Critical
Kerala	16.3	97.5	99.7	93.6	Medium
Tamil Nadu	35.5	97.05	93.6	85.05	Low

Source: 1. for col. 2 and 4. - NFHS iii

For col.3- Elementary education in India, progress towards Universal elementary Education, Flash statistics DISE-2009-10, National University of Education Planning and Administrations. 17-B, Sri Aurobindo Marg, New Delhi 11 00 16 (INDIA) P.36

Note: a. Basic Capability Index\* =  $I1 + I2 + I3 / 3$

I1 = 100-under 5 Mortality Rate

I2 = Rate of School Retention

I3 = Births attended by skilled personnel.

b. BCI value 1) <70.9- Critical, 2) 70.9-80.9- Very low, 3) 80.9-90.9- Low, 4) 90.9-97.9- Medium,

5) > 97.9- High.

\* Social Watch

The basic capabilities of children within the country and the four Southern states found to be critical, low or medium. The basic capabilities of children in India and Andhra Pradesh and Karnataka are critical. The basic capabilities of children in Tamil Nadu observed to be low. Kerala, which projected as one of best states in India in terms of social indicators is performing at medium scale when measured in terms of BCI.

It naturally makes one to ask why the malnourishment, which is preventing in building basic capabilities, persists in our country across all states in spite of high growth rate in GDP. What steps the government took to prevent malnourishment among children, which is taking high toll of their lives?

### **VII. Programmes to eradicate malnutrition among children under five years:**

Integrated Child development Scheme (ICDS) and Midday meal programmes are the two major programmes implemented across all the states in the country to eradicate malnourishment among children. Researchers, state and central government agencies analyzed the impact of these programmes. Here, we review their observations to find causes for the persistence of malnourishment among children in India.

The crucial period in a child's growth is the first six years of life, since about 40 percent of physical growth and 80 percent of mental growth believed to take place during these years. The foundation for physical, psychological, and social development lay in this age. Indian government realizing that the investment in the healthy growth and development of children is very much rewarding for the country under took implementation of ICDS programme. However, there are certain lacunas found in the implementation of the ICDS programme. Some of them are:

**Poor Physical Infrastructure:** More than 60 percent of the Aganwadi Centers (AWC) had no toilet facilities. Lack of space within the premises for conducting outdoor and indoor activities such as games and songs adversely affects the delivery of non-formal pre-school education. Approximately 49 percent of the AWCs had inadequate space for outdoor and indoor activities and 50 percent had no separate space for storage of materials. Similarly, the number of cooking and serving utensils considered inadequate in 42 percent and 37 percent AWCs respectively (CAG 2005, Rajani R. Ved).

**Insufficient material:** Nearly 44 percent of the AWCS lacked pre-school education kits and 37 percent reported lack of materials / aids for nutrition and health education (CAG 2005). Between 1999 and 2005 only 1.79 crore rupees was spent on procuring medicines for treatment of dysentery, diarrhea, respiratory tract diseases and skin and eye infections compared to Rs 10.4 crore that was allocated for these purposes. Similarly, with respect to funding for de-worming medicines only Rs 0.27 crore was spent of the available Rs 7.02 crore (CAG 2005).

**Inadequate supplementary nutrition:** The supply of nutrition supplements was irregular and inadequate. The gaps in delivery range from one to seven months. The heavy focus of the ICDS on nutritional supplementation leads to the relative neglect of other more cost-effective approaches to improve nutrition among children, including efforts to improve environmental hygiene and domestic health management practices (CAG 2005).

Kerala adopted an action plan for making the state malnutrition free in 2004. The programme included linking Aganwadi centers to district and state level officers through computers, conducting publicly posted performance assessments of Aganwadi centers, and focusing on the nutritional status of adolescent girls, through the provision of supplementary nutrition, health checkups. In addition, the formation of girls clubs, a citizen's charter for Aganwadi workers improved service delivery through accountability to established standards. (Swaminathan, M.S. 2008)

Tamil Nadu adopted an 18-point programme focusing on supporting the physical and mental development of children, particularly the girl child. This programme also focused on adolescent girls, pregnant women and lactating mothers and worked through the Aganwadi centers in the state. Key approaches included social mobilization, convergence of services and supporting a people's movement. Self-help groups were an important approach for women's social and economic empowerment. Tamil Nadu also placed special focus on children under three, ensuring ICDS had one worker for children under three and one for children over three. Some Aganwadi Centers, not all, have two helpers but till now no Aganwadi centre has two Aganwadi workers even in Tamil Nadu. The central government decides to appoint an additional worker in the Aganwadi centre on

demand from the state governments in 200 districts with high incidence of malnutrition but this policy not put fully into practice as of now (Swaminathan, M.S, 2008).

The total number of children covered by ICDS is only 50 percent in India. ICDS does not cover all the poor children belonging to less than six years of age.

**Midday-Meal Programme:** In India, Primary school education covers grade 1-5, and is the joint responsibility of central and state government. The central government issues guidelines and provides funding, but policy implementation is a state-level decision. The central government has a long-standing commitment to the provision of midday meals. As early as August 1995, the National Programme of Nutritional Support to primary education mandated cooked meals in all public primary schools. Many Indian states instituted universal midday meals in public primary schools between 2002 and 2004.

Finance and content of the programme: The midday meal scheme is a joint undertaking of Central and State governments. The central government provides financial assistance to cover the cost of food grains and their transport. The food corporation of India provided states free supply of food grains from the nearest of its warehouses. The Supreme Court's 2001 directive mandated that midday meals have a minimum content of 300 calories and 8-21 grams of protein each day of school, for a minimum of 200 days a year. The overall responsibility for implementation of this directive lies with state governments, who supplement the central governments contribution to varying degrees. Day to day operations of the programme lie in the hands of local government bodies, who sometimes delegate implementation to local parent teacher Associations (PTA) or NGOS. The meal comprises cooked rice or wheat (depending on the local staple), typically mixed with lentils or jaggery, and sometimes supplemented with oil, vegetables, fruits, nuts, eggs or dessert at the local level. Eyewitness accounts suggest that, although the quality and variety of the meal varies from district to district or even school-to-school children seem to enjoy their lunch (Dreze and Goyal, 2003).

Midday meal scheme has led to large increases in primary school enrollment. Primary school enrollment increased by 6.6 percent, with the largest and most robust increase coming from grades 1 and 2, where enrollment rose by 18% and 9% respectively enrollment in grades 4 and 5 are by contrast, considerably less responsive to this policy. (Rajshri Jayaraman),

The studies on midday meal programme also reveal existence of some pitfalls in its implementation. Some of the pitfalls are 1) meager honorarium is paid to cooks 2) it is difficult to hire a cook at such a small honorarium 3) inadequate infrastructure like lack of kitchen sheds, absence of separate space for cooking and serving meals, no storage facilities and no clean source of water.

### **VIII. Discussion:**

Child malnutrition levels have declined slowly in India during the 1990s, the decade of rapid economic growth in all sectors of the economy. However, the percentage and quantum of malnourished children in India very high compared to even small countries like Pakistan and the countries having lower GDP growth during the period.

The incidence of malnutrition among the four Southern states in India lower compared to the rest of the states in India. However, within the four southern states nutritional states of children is poor in Andhra Pradesh and Karnataka compared to Kerala and Tamil Nadu. Kerala performs better compared to other three Indian states in the south.

The nutritional status of children depends on many factors like employment income, wealth, per capita consumption, mothers' education, sanitation and hygiene, feeding habits and status of health etc.

Employment though not directly but indirectly through income and wealth of the household influences the nutritional status of the children. Work force participation rate in unorganized sector in almost all the states in India is near about ninety percent. The working conditions in the unorganized sector are very poor and wages often paid much below the minimum wages officially notified by the Government. The purchasing power of these households is very low and rising food inflation added to their misery. The poorest 10 percent of India's rural population were spending on consumption less than Rs 17 per day. Net availability of food grains per day decreased from 458.7 grams in 2001-02 to 407.0 grams in 2008-09. In case of pulses, net availability per day in 2001-02 was 35.4 grams, which has increased to 37.0 grams in 2008-09. The total availability of food grains declined from 468.8 grams in 1991-92 to 444.0 grams in 2008-09. (Directorate of statistics and Economics, Report of Agricultural Cooperation, Ministry of Agriculture) Lack of purchasing power with the people resulted in low consumption of food grains. Thus poverty is the root cause for under consumption of food and hence malnourishment. Children suffer most, as they are dependent on their parents for feeding. Poverty leads to under consumption of food, which in turn results in malnourishment. The children suffering from malnourishment succumb to frequent infections, cold and other illness, which further deteriorate their health and make them absent from school. It not only denies the present opportunity to build capability through acquiring knowledge and skills but also reduces their future capabilities in terms of productivity. Productivity of undernourished children will remain low in the long -run. Therefore, it is not only a loss to the children but also to the country.



Because of low productivity, their wages remain low and poverty persists. This vicious circle will perpetuate unless steps to eradicate poverty taken seriously.

A significant body of Indian and global evidence supports that the timely initiation of breast feeding within one hour of birth, exclusive breast feeding during the first six months of life, the timely introduction of age appropriate complementary foods at six months are most critical and effective to improve nutritional security. According to the NFHS-III data the four southern states under discussion though performing better compared to all India averages, they are far below the required norm to achieve hundred percent nutritional statuses among the children.

Research shows that there is a strong linkage between maternal education and children's health. Children born to educated women suffer less from malnutrition. Maternal education has been associated with nutrition outcomes among children in various settings. NFHS-III data also collaborates with these findings. Incidence of malnutrition in Andhra Pradesh and Karnataka is more in comparison to Kerala and Tamil Nadu because female illiteracy rates are higher in these two states when compared with the other two.

Among the four Southern states, female illiteracy is the highest in Andhra Pradesh, so also chronic malnutrition among the children. Safe drinking water and sanitation are essential to lead healthy life. Maintenance of proper hygiene and sanitation can prevent many diseases from which children suffer. Education also creates awareness about the need of hygiene and sanitation for better health. Kerala and Tamil Nadu are performing better may be because of prevalence of better hygiene and sanitation in those states compared to the other two states in South.

Insecure employment, low wages and poor working conditions, spiraling prices of necessary items of food consumption, privatization of sanitation, neglect of public health and sanitation by the government, emergence of private corporate hospitals on large scale; the consequences of reform process in India, thrown the burden of development onto the poor people. These policies not only impoverished common people but also subjected them to malnourishment. The children being most vulnerable of all people suffer from malnourishment at a higher degree.

Ultimately, the poverty and widening disparities, falling share of wages in Gross Domestic Product compared to profits; the consequences of neoliberal economic policies implemented in India resulted in decrease in food consumption and hence increase in malnutrition, particularly underweight in under five years children across all the southern states in India.

Kerala and Tamil Nadu are performing better in comparison to Andhra Pradesh and Karnataka because of the social reform movements that took place in these two states raised the people's consciousness, which led to the implementation of Minimum Wages Act and National Rural Employment Programme effectively. Effective Public Distribution system is also responsible for low level of malnutrition in these states.

The children are the future of the country. Impairment of their capabilities means impairment of the country's future growth. Therefore, any policies that hamper children growth must be reversed keeping view the good of the country. Some of the alternative measures include:

- [1] A national study conducted in 1992 by the National Institute of Public Cooperation and Child Development confirmed the positive impact of ICDS. Where the programme was operating, there were lower percentages of low-birth-weight babies, lower infant mortality rates, higher immunization coverage, higher utilization rates for health services, and better child nutrition. The percentage of severely malnourished children declined, the positive effects of preschool were evident, and a larger percentage of mothers were getting their children medically examined. Hence, Strengthening ICDS by spreading it to cover 100 percent children in the age group 0-6 years is necessary to reduce malnutrition among children.
- [2] Extending midday scheme to yet to cover primary middle schools
- [3] Providing adequate infrastructure facilities like staff, building and regular supply of provisions to prepare food to the children
- [4] Regular payment of bills to SHGs running midday meal scheme in the schools
- [5] Strengthening implementation of NREGP to provide employment to the adults so that they can feed their children
- [6] Implementation of minimum wages to the workers
- [7] Controlling spiraling food inflation and providing basic necessities through PDC
- [8] Creating awareness among the people about the importance of hygiene, sanitation and feeding habits are essential to overcome the problem of malnutrition among children.
- [9] Ultimately, poverty, which prevents a person from consuming nutritious diet by denying capacity to purchase adequate quantity and quality food, is the root cause of the persistence of malnutrition in India

on large scale. Therefore, programmes to eradicate poverty need effective implementation. Besides, there is need to reconsider the policies which enhance poverty.

**Note:**

Scientific evidence proves that the physical and intellectual development of a child depends on growth in first 1000 days of his life. (Kounteya sinha, 2012).The infants and pre- school children are vulnerable to growth retardation because of malnutrition. Malnourishment of children is a big issue in India because a great majority suffers from under nourishment; over nourishment is a problem for a small minority of the total population. (Gulati, 2010). Malnutrition is the underlying cause of at least 50 percent of deaths of children under five. (M.S.swaminathan, 2008). Malnutrition also has a high economic cost. It results in loss of productivity and reduction in country's GDP. A 1997 report of the National strategies to reduce childhood Malnutrition revealed that the cost of treating malnutrition is 27 times more than the investment required for its prevention. Bangladesh, India and Pakistan are home to fifty percent of malnourished children (Rathan, 1997). HUNGAMA Report of Nandi foundation observed 42 percent of Indian children below five years are malnourished and 59 percent suffering from stunted growth. The prevalence of anemia has increased in children between 6-59 months, where the rates increased from 74 percent in NFHS-2 (1998-99) to 79 percent in NFHS-3(2005-06). These figures indicate that India has not yet achieved nutritional security and there is a mismatch between food availability food consumption and good nutrition in many parts in India (M.S.Swaminathan, 2008).

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(I sincerely acknowledge and thank Prof. M.Sundara Rao., Department of Economics, Andhra University, Prof. M. Prasada Rao, Department of Economics, Andhra University and Prof.M.Nalini, Department of Political Science Andhra University for their valuable suggestions to write this paper.)