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1.0. Introduction

Children of today are the citizens of tomorrow and they would, in fact, be making substantial and significant contributions towards the socio-economic developments of nations. Therefore, the physical and mental health of children become issues of vital concern for nations. India is one of the developing countries, and it has as large as 33 per cent of under-five infant mortality, mainly due to malnutrition. National Family Health Survey (1998-99) estimated that the mortality rate of children under 5 years in India is 94.9. Hunger and malnutrition are serious problems in Asia, South America and Africa, which prove hazardous towards normal development of mind and body of the child. Nutrition vis-a-vis protein deficiency is one of the commonest factors in creating health hazards, and therefore demands special research attention. From the reviews of nutrition and dietary surveys/studies, particularly those of the Indian Council of Medical Research, we could find that 35 per cent of children do not get adequate protein in their regular diet. Alarmingly as large as 92 per cent do not get adequate calories. Children differ from adults because their nutritional intake must provide not only for the replacement of tissues but also for growth.

Children are like barometers, that the children reflect the nutritional status of the community clearly. Any improvement in the quality of child life is clearly a step towards social and economic development of a country.

UNICEF Executive Director Carol Bellamy (1999) said that “in the poorest countries one in three children will not even live beyond the age of five, much less attain adulthood and such odds are completely unacceptable in a world where almost every nation has ratified the Convention on the Rights of the Child”. The Convention states that all children have the right to basic health and education as well as protection from the ravages of war, hazardous labour and sexual exploitation.
1.1. Global Scenario of Child Nutrition

The health of people is the wealth of a country. Among various factors affecting the health of the people, nutrition has been found to be the most crucial pre-requisite. Nutrition and health are complementary and are also inseparable. These two factors are very strongly control the quality of life of men especially in the developing countries. While nutrition is regarded as a vital component of health, the latter is the ultimate objective of nutrition.

According to World Health Organisation’s (1998) reviews on child malnutrition, an estimated 174 million under-five children in the developing world are malnourished as indicated by low weight for age, and 230 million are stunted. Malnutrition results in poor physical and cognitive development as well as lower resistance to illness. It is now recognised that 6.6 million out of 12.2 million deaths among children under-five - or 54 per cent of young child mortality in developing countries - is associated with malnutrition. In addition to the human suffering, the loss in human potential translates into social and economic costs that no country can afford. Over 800 million people still cannot meet basic needs for energy and protein, more than two thousand million people lack essential micronutrients, and hundreds of millions suffer from diseases caused by unsafe food or by unbalanced food intake. In 1990, only 53 developing countries had reliable national data on the prevalence of underweight in young children By 1995, 97 countries had such data, and 95 countries also had data on stunting and wasting. It is estimated that more than half of the young children in South Asia suffer from protein-energy malnutrition, which is about five times the prevalence in the Western hemisphere, at least three times the prevalence in the Middle East and more than twice that of East Asia. Estimates for sub-Saharan Africa indicate that the prevalence is approximately 30 per cent. In some regions, such as sub-Saharan Africa and South Asia, stagnation of nutritional improvement combined with a rapid rise in population has resulted in an actual increase in the total number of malnourished children. Currently, over two-thirds of the world's malnourished children live in Asia (especially South Asia), followed by Africa and Latin America.
According to WHO’s (1999) concepts on Promoting Good Nutrition, emphasis was given to young children who are at most risk of undernutrition between the ages of six months and three years. Inadequate feeding is one of the immediate causes. There are large differences between communities and families in food availability and preferences, cooking facilities, hygiene conditions, mothers’ education and workload, and child feeding beliefs and practices. So, health workers and families should first assess and analyse feeding practices and then decide together which actions are feasible and acceptable to the family.

According to WHO (2000), Nutritional well-being firmly rests on a foundation of at least 4 main factors—food, care, health and environment. Caring for the nutritionally vulnerable includes the time, attention, and behaviour needed (in addition and complementary to household food security) to ensure food, health and love are sufficiently provided to ensure healthy nutrition. Among the range of caring behaviours are breast-feeding and appropriate complementary feeding for infants and young children, care and support for mothers during pregnancy and lactation, time and help to ensure adequate nutrition for the elderly, improving education, literacy, social security, employment opportunities and rights of women. Nutritional well-being is particularly well correlated with women’s education, literacy and economic security.

Good health is as fundamental to nutritional well being, as good nutrition is crucial for maintaining health, growth and development. Prevention of infection and management of infectious diseases, so as to minimize their incidence, duration and severity, are essential for optimising nutrition. Access by all, to adequate health care services is needed to ensure priority actions such as immunisation, early diagnosis and management of infectious diseases—especially, diarrhoea, respiratory disease, measles, malaria and tuberculosis, health and nutrition education, growth monitoring and the promotion of primary health care.
UNICEF action in nutrition (2000) states that, translating nutrition strategy into real progress for children requires action across a broad range of areas. Improved nutrition in countries around the world has been achieved through approaches as diverse as fortifying staple foods, promoting breast-feeding, improving access to health services and education and instituting community growth monitoring and promotion programmes. UNICEF’s work in the area of nutrition comes under headings as diverse as the problems – and the solutions – to the causes of malnutrition.

According to UNICEF’s Statistics (2001):

Infants exclusively breastfed (0-3 months) – 51 per cent
Breastfed with complementary food (6-9 months) – 31 per cent
Still breast-feeding (20-23 months) – 67 per cent

In the United States, malnutrition due to undernutrition is most likely to occur, in infants, children and adolescents, when nutritional requirements for tissue growth and development are high. Undernutrition may inhibit growth, delay nutrition, limit physical activity, and interference with learning.

1.2. Scenario of Child Nutrition in India

According to the provisional Census (2001), the population of India is 1,027,015,247 comprising of 531,277,078 males and 495,738,169 females. India is now the second country in the world, after China, to officially cross the one billion mark. The most alarming finding of the Census 2001, is the ‘missing girl child’. It is interesting to note that the sex ratio, the number of females per thousand males, has improved. It is 933 females per thousand males, while it was 927 females per thousand males in 1991. But the sex ratio of the child population in age-group 0-6 years has declined. The child sex ratio in 1991 was 945, which have now come down to 927. It is important to note that almost the same level of decline in child sex ratio took place
during 1981-91. In 1981 the child sex ratio was 962, which declined to 945 in 1991. The worrying phenomenon is generally considered to be the outcome of increasing practice of female feticide along with a certain amount of female infanticide.

**Padmanaban.A, (2001)** Former Governor, Mizoram in his Convocation Address at Bharathidasan University, Tiruchirappalli, states that, “we have the largest number of people below poverty line and the largest number of children suffering from malnutrition. It is ironic that despite all our planning for years, we have not been able to give safe drinking water to our people. The benefits of science and technology have not percolated to the masses. Science and technology should aid and accelerate the betterment of human conditions and cater to people’s needs”.

**1.2.1. Health Details of Indian Child**

The health details of the Indian child is presented in table 1.01

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Details</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Population under 5 (thousand)</td>
<td>114976</td>
</tr>
<tr>
<td>2</td>
<td>Infant Mortality Rate (per 1,000 live births)</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>Under 5 Mortality Rate (per 1,000 live births)</td>
<td>98</td>
</tr>
<tr>
<td>4</td>
<td>Annual no. of under 5 Deaths (thousands)</td>
<td>2400</td>
</tr>
<tr>
<td>5</td>
<td>Infant with Low Birth Weight (%)</td>
<td>33</td>
</tr>
<tr>
<td>6</td>
<td>Exclusively Breastfed (0-3 months)</td>
<td>51</td>
</tr>
<tr>
<td>7</td>
<td>Breastfed with Complementary Food (6-9 months)</td>
<td>31</td>
</tr>
</tbody>
</table>
1.2.2. Nutritional Trends of the Child

According to *Nutritional Trends in India (1993)* the National Nutrition Policy and Plan of Action, Government of India sets Nutrition Goals to be reached by 2000. They are as follows:

- Reduction in moderate and severe malnutrition among pre-school children by half.
- Reduction of low birth weight to less than 10 per cent
- Elimination of blindness due to vitamin – A deficiency
- Reduction of iron deficiency anaemia among pregnant women to 25 per cent
- Universal iodization of salt by 1995, for reduction of iodine deficiency disorders to 5 per cent
- Production of 250 million tonnes of food grains to ensure food security.

Infants of our country thrive on breast milk alone up to six months of life and their growth rate during this period is satisfactory. Breast milk alone is not able to provide sufficient amounts of all the nutrients needed to maintain growth after the six months. Increased needs of calories and protein of growing children cannot be met by the diminished output of mother’s milk. Milk is also a poor source of vitamin C and
supplementation with fruit juices is essential. Iron stored in the liver of the infant would last only upto 4-6 months. Hence iron rich foods should be given atleast from six months onwards.

Results of some of the investigations conducted at National Institute of Nutrition, Hyderabad suggest that early introduction of supplements before six months of age is not associated with any beneficial effect of infant growth. It is possible that introduction of supplements results in reduction in suckling stimulus and therefore reduction in milk output finally resulting in shorter duration of lactation and shorter duration of lactational amenorrhoea and inter - pregnancy interval.

Though Indian babies are given supplementary food, they are either introduced very late or given adult form of diet. The age of introduction of supplementation is 3-5 months in the urban elite and middle-income group. The supplementation is delayed in urban poor by 7-9 months and rural poor by 9-11 months. Bulky adult diet, when given to infants, usually does not meet the nutritional requirement, particularly calories. Nutrient density of weaning foods of western diet is 1.0 kcal / g. of food, whereas in Asia, the nutrient density is 0.25 kcal to 0.4 kcal / g. Hence calorie - dense foods like malted food should be given to infants.

A large survey of children aged 1-4 years in 1995 showed that there has been an increase in average height since the last survey of 1967-1968. Average intakes of thiamin, riboflavin, niacin, vitamins B6 and B12 were satisfactory. But iron deficiency was found in almost one-quarter of those aged 1-2 years. Leafy green vegetables were eaten by only 39 per cent of the sample (National Diet and Nutrition Survey, 1995). Human beings must eat to survive. The well-nourished child is more apt to reach his/her full potential physically, mentally, and intellectually.
1.2.3. Nutrient Requirements of the Child

The nutrient requirements of children of one to three years as recommended by the Indian Council of Medical Research, (1992) is presented in table 1.02.

Table: 1.02. Nutrient Requirements for One to Three Years of Indian Children

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Requirements for Children (1–3) years</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body wt</td>
<td>12.2 (kg)</td>
</tr>
<tr>
<td>2</td>
<td>Net Energy</td>
<td>1240 (k.cal/d)</td>
</tr>
<tr>
<td>3</td>
<td>Protein</td>
<td>22 (g/d)</td>
</tr>
<tr>
<td>4</td>
<td>Fat</td>
<td>25 (g/d)</td>
</tr>
<tr>
<td>5</td>
<td>Calcium</td>
<td>400 (mg/d)</td>
</tr>
<tr>
<td>6</td>
<td>Iron</td>
<td>12 (mg/d)</td>
</tr>
<tr>
<td>7</td>
<td>Vitamin A</td>
<td>400 (g/d)</td>
</tr>
<tr>
<td>8</td>
<td>B – Carotene</td>
<td>1600 (g/d)</td>
</tr>
<tr>
<td>9</td>
<td>Thiamine</td>
<td>0.6 (mg/d)</td>
</tr>
<tr>
<td>10</td>
<td>Riboflavin</td>
<td>0.7 (mg/d)</td>
</tr>
<tr>
<td>11</td>
<td>Nicotinic acid</td>
<td>0.8 (mg/d)</td>
</tr>
<tr>
<td>12</td>
<td>Pyridoxine</td>
<td>0.9 (mg/d)</td>
</tr>
<tr>
<td>13</td>
<td>Ascorbic acid</td>
<td>40 (mg/d)</td>
</tr>
<tr>
<td>14</td>
<td>Folic acid</td>
<td>30 (g/d)</td>
</tr>
<tr>
<td>15</td>
<td>Vitamin B-12</td>
<td>0.2 – 1.0 (g/d)</td>
</tr>
</tbody>
</table>

Kg – Kilogram  K.cal/d – Kilo – Calories/ day

g/d – gram/ day  mg/d – Milligram/day

Source: Nutrition Requirements and Recommended Dietary Allowances for Indians. The Indian Council of Medical Research, New Delhi, 1992.

Food provides nutrients, which are needed for giving energy, bodybuilding, repair of tissues, formation of enzymes etc. Foods vary in their composition. The availability of
derive nutrients differs from food to food. In order to derive a balanced diet, nutrients have to be provided in adequate and proper proportions.

1.2.4. Dietary Guidelines of the Child

Dietary guidelines for the age group one to three-years as per the National Institute of Nutrition (NIN, 1998) are presented in table 1.03.

Table: 1.03. Dietary Guidelines for One to Three Years of Indian Children

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Food Groups</th>
<th>Children 1 – 3 years Amount / day (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cereals and Millets</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>Pulses</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>Milk (ml)</td>
<td>500</td>
</tr>
<tr>
<td>4</td>
<td>Roots and Tubers</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Green Leafy Vegetables</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>Other Vegetables</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>Fruits</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Sugar</td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>Fats / Oils (Visible)</td>
<td>20</td>
</tr>
</tbody>
</table>


1.3. Five Year Plans and Child Nutrition

The succeeding pages discuss about health in general, child nutrition in particular, with special references to Indian Five Year Plans.

1.3.1. First Five Year Plan (1951-56)

Out of the total outlay, health was allocated 3.32 per cent. During this period the number of medical institutions and availability of trained personnel improved
significantly. The All India Medical Institute, one of the central institutes for higher research, was established. The Health Publicity Bureau was established for production of educational material. The All India Institute of Hygiene and Public Health was also established for training and research. The plan aims at the production of 7.6 million tons of food grains with a view to make internal production self-sufficient by 1955-56. To raise consumption to the nutritional standard, additional quantity required by 1955-56 was estimated at 2.2 million tons, about 0.7 million tonnes of which were made up in the plan period. The creation of a nutritional section in the State public health departments was established. The education of specialised nutrition workers, workers in food trades and of the general public were given importance.

1.3.2. Second Five Year Plan (1956-61)

Out of the total budget health received 3.01 per cent. Greater stress was given on increasing the production of protective foods such as milk, eggs, fish, meat, fruits and green vegetables. In providing nutrition at optimum level to everybody, priority was given to vulnerable groups of the population, namely expectant and nursing mothers, infants, toddlers, pre-school children and children of school-going age. State governments planned to convert 131 existing dispensaries into PHCs. Health Education Bureaus were constituted at the Central and the State levels. Specialised centres of research were set up in different institutions.

1.3.3. Third Five Year Plan (1961-66)

A systematic approach to the problem of nutrition was given during this plan. Information and guidance about nutrition, about conserving the nutritive elements in food and avoiding wrong uses and wastage, was made available through demonstration and the work of voluntary organisations and mahila mandals in the villages as part of the community development programmes. For undernourished children, the provision of protective foods like milk and additions to the diet through multi-purpose food, vitamins, etc., were made. Appreciable progress was made in the
establishment of PHCs. Health received 2.62 per cent of the total outlay, lesser than what it received in the second plan period. It was recommended that health education should be undertaken as a national programme. The Third Plan also provided for increase in facility for training in health education.

1.3.4. Fourth Five Year Plan (1969-74)

This plan attempted to set out an integrated nutrition programme. Programmes concerned with pre-school children and expectant and nursing mothers were concentrated in known areas of acute malnutrition, and became an important item in the activities of balwadis. Better implementation of nutrition programmes was ensured during this plan by effective improvements in organisation and providing for adequate supervision. Nutrition education was promoted through applied nutrition programme and other programmes like nutritional education through mahila mandals and also through state nutritional bureau. Provision was also made for audio-visual publicity and for extension work through voluntary agencies. Further expansion of PHCs was planned for. However, health received only 2.12 per cent out of the total budget.

1.3.5. Fifth Five Year Plan (1974-79)

Out of the total budget, health received 1.73 per cent. In this period the ‘National Programme of Minimum Needs’ was started. This programme envisaged one PHC for each community development block and one Sub-Centre for every 10,000 population. An amount of Rs. 1.27 crores was recommended during 1977-79 for fortification of foodstuffs, nutrition education through mass media and pilot research projects etc. Further, it was also proposed to upgrade facilities in each PHC. Research in the area of economic aspects of health administration and management, contraceptive methods and family planning were promoted.
1.3.6. Sixth Five Year Plan (1980-85)

The national health policy was evolved during this period. The special nutrition programme which was provided with supplementary nutrition to pre-school children, pregnant women and nursing mothers was extended to cover 600 ICDS projects from 200 projects at the beginning of the plan. In ICDS projects, integration of nutrition with health, sanitation, hygiene, water supply, education etc., was improved. The importance of health information systems was realised. Nutrition programmes were implemented at the Centre and State levels under different agencies. A Co-ordination Committee at a high level was set up so as to facilitate inter-ministerial interaction in the process of decision making and fixing responsibilities for programme performance. In central sector, the provision was Rs.14.95 crores and for the direct nutrition programmes in the state sector, the provision was Rs.223 crores. Out of the total budget, health received 1.86 per cent.

1.3.7. Seventh Five Year Plan (1985-90)

During this period the thrust was on continuing the special nutrition programme. Measures were taken up to bring Special Nutrition Programme (SNP) centres either within the ambit of the ICDS programme or upgrading them by linking them with other inputs like health sanitation, hygiene, water supply and education. Attempts were made to ensure uninterrupted supply of required nutrition material for specified days for all the anganwadis / SNP centres. Out of the total budget, health received 1.88 per cent.
1.3.8. Eighth Five Year Plan (1992-97)

This plan emphasises the need for a major thrust in qualitative improvements. "Health for All" paradigm was not only taken into account for high risk vulnerable groups i.e., mothers and children, but that was also focussed sharply on the underprivileged segments within the vulnerable groups. This could be done through emphasising the primary health care. Out of the total budget, health received only 0.94 per cent.

1.3.9. Ninth Five Year Plan (1997-2002)

During this plan the "National Policy on Empowerment of Women" was adopted in April 2001. A National Plan of Action (NPA) was formulated to ensure the requisite access of women to information, resources and services. The National Population Commission played a catalytic role in improving centre-state and inter-sectoral co-ordination, and in involving private sector, voluntary institutions and civil society at large for generating a vigorous people's movement to support the national efforts to achieve the goals set in the National Population Policy 2000. Out of the total budget, health received 1.96 per cent. However, over the years there has been a reduction in what the health ministry receives as a percent of the total budget, which is presented in table 1.04.
Table 1.04. Plan-Wise Allocation of Funds to Health Sector in India

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Plans</th>
<th>Allocation to Health Sector in total Budget (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I plan</td>
<td>3.32</td>
</tr>
<tr>
<td>2</td>
<td>II plan</td>
<td>3.01</td>
</tr>
<tr>
<td>3</td>
<td>III plan</td>
<td>2.62</td>
</tr>
<tr>
<td>4</td>
<td>IV plan</td>
<td>2.12</td>
</tr>
<tr>
<td>5</td>
<td>V plan</td>
<td>1.73</td>
</tr>
<tr>
<td>6</td>
<td>VI plan</td>
<td>1.86</td>
</tr>
<tr>
<td>7</td>
<td>VII plan</td>
<td>1.88</td>
</tr>
<tr>
<td>8</td>
<td>VIII plan</td>
<td>0.94</td>
</tr>
<tr>
<td>9</td>
<td>IX plan</td>
<td>1.96</td>
</tr>
</tbody>
</table>

This certainly does not bode well for the masses of India, whose health needs, are definitely not on the decrease. It connotes a gross lack of priority given to the health sector. Much attention has been given to the organisation of health services especially in the rural sector, but without sufficient financial allocation and proper utilisation of the funds, no progress can be made.

1.4. Importance of Child Nutritional Education for Mothers

According to Kumar .R, (1991) good health is the foundation of growth and development and this becomes the most important concern of the mother towards her young child. Good health is not just the absence of disease, illness or deficiency. It is physical and mental well-being of the child. The mother should be able to recognise the health status of her child. A healthy child has a good posture, free body movement, sparkling eyes, clear glowing skin, shining hair, good appetite, no discharge from nose, ear, eyes and mouth and she is physically active and alert, mentally conscious and eager, cheerful and happy. If a child is dull, listless, sleepy,
and irritable all the time, mother should recognise that her child’s health is not good, even if she has no symptoms of any particular illness. Mother should be aware of meeting the child’s basic physical needs, maintain personal and environmental hygiene, buildup habits, practices and attitudes for health, provide adequate and balanced food, prevent communicable diseases and avoid accidents and recognise and treat ill-health.

The most important health care of the child is immunisation. The mother should be aware of this important practice of immunisation and she should be aware that immunisation is a method of increasing the child’s resistance against certain specific diseases. Immunisation is done against tuberculosis, diphtheria, whooping cough, pertusis, tetanus, polio, measles and typhoid. For the vaccine to be most effective, they are given at a particular age in definite doses.

Mothers should be aware of the periodical health checkup for their children to maintain good health for them. They should be aware of ongoing health care programmes for their children such as maternal and child health services, integrated child development services scheme, school health programmes, national expanded programme of immunisation etc., and utilize the services when necessary.

Nutrition is the valid need for the growth and development of the young children. Mothers should be aware of the nutritional needs for their children. They should know that children should be given a balanced diet with a combination of protein, calorie, vitamins and minerals. They should be aware of what food should be given at what age and what type of consistency should be given at each age. She should teach her children good eating habits at regular intervals. She should be aware of problems of malnutrition and about different nutrition deficiency diseases and infection as infants and preschoolers are the most critically affected group. Malnutrition directly or indirectly contributes to high mortality and morbidity. She should be aware of the malnutrition problems like protein, calorie malnutrition in two forms – Kwashiorkar, and marasmus. She should be aware of the symptoms. The vitamin A deficiency, which may cause blindness in children if neglected, iron deficiency anemia that is
mainly due to iron deficiency and iodine deficiency, which may cause goiter and cretinism in children, associated with mental retardation. Mothers should be aware of preventive programmes for malnutrition like ICDS programme, applied nutrition programmes, balwadi nutrition programme, special nutrition programme, prophylaxis against nutritional anemia, vitamin A prophylaxis, national goiter control programme and utilise services where necessary.

The UNESCO (1993) described that a responsible parenthood is an option, rather than an obligation and is still a revolutionary concept in much of the world, although it is accepted in some countries. Lack of education among males or females affects a child's development and learning. Both remain unaware of the benefits of any facilities provided for them either by the government or by the community. Female illiteracy especially affects all aspects of child development. Child rearing in Indian homes is a joint venture-mostly of the womenfolk. The correlation between the female illiteracy and infant mortality is clear. Again, the percentage of adults who live in rural areas is more than those who live in urban areas. The need to educate this vast population cannot be over emphasised. Appropriate means of educating the parents as responsible ones in bringing up their children depends upon the education given by the experts in the field and quality of life of the family.

Lack of education does not lead only to the state of ignorance regarding vital knowledge of child development and care but it also results into life styles that are harmful to child's growth. The illiterate parent population, under the influence of customs and rituals, is often very superstitious. Illiteracy, poverty and belief in superstitions generate an unwholesome environment for the child to grow up in. It is not surprising to find that such children are physically weak, nutritionally underfed and exposed to various physical ailments. Parent educators need to educate and motivate future parents to use variety of health and educational services offered by state government and community organisations.
1.5. The State – of – Art on Child Nutrition in Tamil Nadu

According to UNICEF (1994) about 190 infants die each day in Tamil Nadu, 17 out of every 1000 children aged 1-4 die each year.

India has completed its second National Family Health Survey (1994-1998), which collected data on certain aspects of family health such as infant, child and maternal mortality, the health and nutritional status of family members and their utilisation of health care services of various states. Infant mortality taken during 1988-1992 was 67.7 per cent, which was now declined to 48.2 per cent during 1994-1998. Mortality rate below age 5, which was 86.5 per cent, now declined to 63.3 per cent. It is estimated that in Tamil Nadu 39.7 per cent children below the age group of 3 years are underweight and 29.4 per cent and 19.9 per cent were coming under stunted and wasted group respectively. This is a direct result of inadequate nutrition during the childhood period. According to this survey the percentage of children in the age group of 12-23 months who received full immunisation are 88.8 per cent. This shows the successful implementation of Expanded Immunisation Programme in this state.

According to Census (2001), the provisional population of Tamil Nadu is 62,110,839 with the male, female population of 31,268,654 and 30,842,185 respectively. The female literacy rate is 64.55 with the total literacy rate of 82.33 per cent.

The Government of Tamil Nadu has implemented various programmes specially to improve Child Nutrition. Brief descriptions of health and nutrition services available in Tamil Nadu are given in the following pages.

1.6. Health and Nutrition Programmes in Tamil Nadu

1.6.1. Integrated Child Development Services (ICDS)

ICDS was launched in 1971. It provides with a package of services comprising nutrition, medical check-up, immunisation, referral services, day care services, and education for mothers and functional literacy for adult women. These services are
extended with Anganwadi as the focal point. There will be one Anganwadi for every thousand population. As soon as the ICDS starts functioning in a block, the Special Nutrition Centres are merged into it. The ICDS is a centrally sponsored scheme, introduced at the blocks level in the state of Tamil Nadu.

1.6.2. Tamil Nadu Integrated Nutrition Project (TINP)

For combating malnutrition among women and children, the Tamil Nadu Government started Tamil Nadu Nutrition Project during 1980. It was established with the objectives of ensuring child survival, health and development by improving maternal health, improving the nutrition and health status of children of 0-6 years and to provide prophylaxis against micro nutrient deficiencies. It was also started with the objectives of enhancing capabilities of mothers, female adolescents, family and community towards improving individual and community. TINP was established in all the districts of Tamil Nadu except the ICDS blocks.

1.6.3. Tamil Nadu Government Nutritious Meal Programme (TNGNMP)

This was first initiated in 1982. It covers children from class 1 – X. Pre-school training is given to children, as well as health care education to mothers, through the Community Welfare Centres.

1.6.4. Universal Immunisation Programme (UIP)

In 1974, WHO launched a global immunisation programme, known as Expanded Programme on Immunisation (EPI) to protect all children of the world against six vaccine-preventable diseases, namely – diphtheria, whooping cough, tetanus, polio, tuberculosis and measles by the year 2000. EPI was launched in India in 1978. The programme is now called Universal Child Immunisation, 1990 – that’s the name given to a declaration sponsored by UNICEF as part of the United Nation’s 40th anniversary in 1985. The Indian version, the Universal Immunisation Programme, was launched on 1985 and was dedicated to the memory of Smt. Indira Gandhi. The
National Health Policy also aimed at achieving universal immunisation coverage of the eligible population.

**1.6.5. Pulse Polio Immunisation Programme (PPIP)**

This programme was launched during 1995 with the specific goal of attaining cent percent achievement against the disease called polio at a time all over India. The target groups are the children under 0-5 years. Till now 6 camps have been conducted on Pulse Polio. Every year the camp is conducted during the month of December and January. In India the children covered under this programme during 1994-98 was only 62.8 per cent, whereas in Tamil Nadu it was 98 per cent. The success is because of the cent percent coverage of the target population during the Pulse Polio Immunisation camps by the health workers and service oriented associations / organisations like Rotary Club, Lions Club, National Service Scheme, Non – Governmental Organisations, and Developmental Departments etc.

**1.6.6. Dr.J. Jayalalitha’s 15 Point Programme for the Welfare of Women and Children**

The 15 Point Programme launched in 1993 sets specific goals for child survival, protection and development, to be reached by 2000 AD. To achieve the goals declared by the programme within the period of time, the State Government has to involve itself completely and its full potential has to be spent for the 15 points of the programme such as education of children, nutrition, maternal and child health, family welfare, literacy and status of women, safe drinking water and sanitary facilities for all children’s centres, elimination of child labour, improving the status of girl child and prevention of childhood disabilities. The 15 point programme gave special attention to the needs of children who are most deprived and most in need of protection.
1.7. Role of Non-Governmental Organisation in Child Nutrition

The primary providers of family health and welfare services in Asia and the Pacific have been the governments of the region. The government took over because in most cases there was no other option. Unfortunately there are negative aspects to this. Government services are usually of a poorer quality than those of the private sector; quality has been sacrificed for quantity.

However, from the mid 1980's NGOs have come to play an important role in the education of family health and welfare services in Asia and the Pacific. The most important achievement has been their policy and programme innovations, which have provided models to governments for the full range of health and welfare services. NGOs are more likely than governments to offer a full range of services, including those that the government found too costly or controversial. NGOs have also been more aggressive in identifying and meeting the needs of special population. In India, International Agencies are the primary non-government organisations that have led the way in health care.

1.7.1. World Health Organisation (WHO)

The relationship between WHO and India since 1948 has been very cordial, supportive and fruitful. Family health is one of the major programme activities of WHO since 1970, and is broadly subdivided into maternal and child health care, human reproduction, nutrition and health education. The chief concern is improvement of the quality of life of the family as a unit. Immunisation against common diseases of childhood (Expanded Programme on Immunisation) is a priority programme of the WHO. It also has paid attention in its programme of work to non-communicable disease problems such as cancer, cardiovascular diseases, genetic disorders, mental disorders, drug addiction and dental diseases.
1.7.2. United Nations International Children’s Emergency Fund
(UNICEF)

UNICEF is one of the specialised agencies of the United Nations. It was established in 1946 by the United Nations General Assembly to deal with rehabilitation of children in war-ravaged countries. It first came to India in 1949, and since then has slowly been expanding its sphere of activities in health care. UNICEF gives high priority to improving child nutrition. Its aid for child nutrition, which first took the form of supplementing child feeding, began to expand in mid-1950’s with the development of low-cost protein-rich food mixtures. In collaboration with FAO, UNICEF began aiding “applied nutrition” programmes through such channels as community development, agricultural extension, schools and health services so as to stimulate and help the rural population to grow and eat the food it required for better child nutrition.

1.7.3. United Nations Development Programme (UNDP)

The UNDP was established in 1966. It is the main source of funds for technical assistance. The member countries – rich and poor – of the United Nations meet annually and pledge contributions to the UNDP. The basic objective of the UNDP is to help poorer nations develop their human and natural resources to the maximum extent possible. The UNDP projects cover virtually every economic and social sector – agriculture, industry, education and science, health, social welfare, etc.

1.7.4. Food and Agriculture Organisation (FAO)

The Food and Agriculture Organisation was formed in 1945 with its headquarters in Rome. It was the first United Nations Organisation specialised agency, created to look after several areas of world co-operation. The chief aims of FAO are: (1) to help nations raise living standards (2) to improve nutrition of the people of all countries (3) to increase the efficiency of farming, forestry and fisheries (4) to better the condition of rural people and through all these means, to widen the opportunity of all people for
productive work. The most important aspect of FAO’s work is towards ensuring that the food is consumed by the people who need it, in sufficient quantities and in right proportions, to develop and maintain a better state of nutrition throughout the world.

1.7.5. World Bank (WB)

World Bank is a specialised agency of the United Nations. It was established with the purpose of helping under-developed countries raise their living standards. The powers of the bank are vested in a Board of Governors. The bank gives loans for projects that will lead to economic growth. The projects are usually concerned with electric power, roads, railways, agriculture, water supply, education, family planning, etc. Health and environmental components exist between WHO and the World Bank.

1.7.6. United States Agency for International Development (USAID)

A USAID mission functions in New Delhi. The USAID has been assisting in a number of projects designed to improve the health of the people of India. These are: (1) malaria eradication (2) medical education (3) nursing education (4) health education (5) water supply and sanitation (6) control of communicable diseases (7) nutrition and (8) family planning.

1.7.7. Cooperative for American Relief Everywhere (CARE)

CARE is a non-sectarian and non-governmental organisation, created in 1946 for the immediate purpose of sending food from American donors to people in war-devastated Europe. CARE began its operation in India in 1950. Since 1961, CARE has been helping India in the mid-day meal scheme for primary school children. This is the largest school-feeding programme in the world outside the U.S.A. Beside the feeding programmes, it has given help in the fields of medicine, literacy, vocational training, agriculture and in a small way helping schools to grow more food by provision of garden tools, pumps and improved seeds.
1.7.8. Indian Red Cross (IRC)

The Red Cross Society of India was established by an Act of the Indian Legislature in 1920 with the triple objective of the improvement of health, prevention of disease and mitigation of suffering. Disaster services comprise distribution of milk, medicines, vitamin tablets, cod-liver oil and hundreds of other items to the famine stricken people and to those who have been hit by the floods. In the development of maternity and child welfare services, the society has done pioneering work and has functioned as an auxiliary of the country’s health services.

There are numerous other non-governmental organisations. Some of these are Oxfam, Save-the-Children fund, International Planned Parenthood Federation, The Population Council, Voluntary Health Association of India, All India Women’s Conference, Indian Medical Association, Trained Nurses Association of India, International Agency for the Prevention of Blindness, World Federation of Deaf, International Leprosy Association, World Federation of Medical Education and so on and so forth. Non-governmental organisations constitute a valuable resource in promoting health care.

1.8. Concepts of Child Nutrition

The main concepts which help the proper growth and development of the child are breast - feeding, supplementary feeding, nutrients, nutritional deficiency diseases, nutritional status and immunisation. Various nutritional institutions also stress on these concepts. The emphasis given on these concepts by various nutritional institutions and by different authors are presented as follows:

Kumar (1991) stated, “Nutrition is the vital need for the growth and development of the young children. Mothers should be aware of the nutritional needs of their children. They should know that children should be given a balanced diet with a combination of the Nutrients like protein, calorie, vitamins and minerals. He also
stated that the mother should be aware of the Nutrition Deficiency Diseases and the infections that most critically affect the infants and pre-school children.

Digumarti Bhaskara Rao (1996) quoted that “Modern Science and technology has not been able to produce a better food for young infants than mother’s milk. Breast-feeding is the best way to satisfy the nutritional and psychological needs of the baby”. He also stated that “Providing a Nutritious and wholesome diet and immunising the child against diseases common during childhood are of utmost importance. If nutritious food is not given to him, stunted growth will be the result and malnutrition will set in. Malnutrition in early life affects his development in later life”. He also pointed out that “The diseases preventable by immunisation usually strike the children early during infancy or the pre-school period. Immunisation prevents both infection and malnutrition”.

According to Lalitha. M, (1997), the theme of ‘Child Caring Practices’ for the nationwide celebration of the National Nutrition Week is most appropriate and timely, as it would enable focused attention on critical areas like feeding practices for infants and young children, preparation of complementary food from the family pot, health seeking behaviour and care of sick children, hygiene practices and psycho-social stimulation. Reaching basic information on these vital aspects to the people and particularly to the women will empower them to make informed decisions on food, nutrition and feeding practices, which is a key to the self-sustainable development model.

World Health Organisation (1999) reported that food and nutrient security means access by all people of all ages at all times to the food, diet, and nutrients needed for a healthy life. The health-related framework of WHO includes the following:

- Pregnant mothers have access to the foods needed to meet nutritional requirements of pregnancy;
- The growing foetus has its iodine requirements met;
• Infants have access to breast milk, exclusively for the first few months of life, with continued breast milk;

• Infants and young children consume an adequate, safe balanced diet to ensure optimal growth;

• Iodine requirements are met through iodized salt;

• Vitamin A requirements are met through diet, fortified foods and if necessary, supplementation;

• Iron requirements are met through balanced diet, fortified food and supplementation, if necessary;

• Folate requirements are met, particularly by adolescent girls and pregnant women;

• Households and families have access to sufficient safe food throughout the year to meet all nutrient requirements of all household members.

According to UNESCO (2000) “Mother and child health and welfare involves mainly the improvement of their health needs through Nutrition, Breast - feeding, Immunisation, Prevention of common ailments, Better sanitation and decision-making”.

In a nutshell, the following are the important dimensions of child nutrition or the concepts of child nutrition

- Breast - Feeding
- Nutrients
- Nutritional Status
- Immunisation
- Nutritional Deficiency Diseases / Prevention of Common Ailments
- Balanced diet
- Supplementary Food
1.9. Statement of the Problem

The current nutritional situation in Tamil Nadu is rather disturbing. According to NIN’s report on Nutrition Trends in India (1993), by comparing the states, the average dietary energy intake per cu is around 2,280 kcal, which is close to the RDI. But the Energy intake is as low as 1,871 kcal/cu/day in the State of Tamil Nadu and as high as 2,760 in Punjab. The overall intake of protein is around 62 g/cu/day, a level close to the RDI of 60g. The intake in Tamil Nadu is 45.6 which is below the RDI level. Geographically Tiruchirappalli District is situated almost at the centre of Tamil Nadu. It is an industrial based area where most of the people are engaged in related activities. Till now no studies have been done on comparing the knowledge, attitude and practices on child nutrition among rural and urban mothers particularly those who have children of 1-3 years. Since this period is a crucial growing age in which nutritional requirements for tissue growth and development are high for children, and these children are going to be the future youth, the researcher developed a keen interest to study this topic. Since health is the basic indicator, which determines the development of the nation, a study on child nutrition and nutritional status of the child among the rural and urban mothers is a significant one.

1.10. Need for the Study

According to World Health Organisation’s (1998) reviews on child malnutrition, an estimated 174 million under-five children in the developing world are malnourished as indicated by low weight for age, and 230 million are stunted. Malnutrition results in poor physical and cognitive development as well as lower resistance to illness. It is now recognised that 6.6 million out of 12.2 million deaths among children under-five or 54 per cent of young child mortality in developing countries is associated with
malnutrition. In addition to the human suffering, no country can afford the loss in human potential translated into social and economic costs.

Infant mortality rate in the country is as high as 69 per 1,000 live births and under 5 mortality rate is 105 per 1,000 live births and annual number of under 5 deaths is 2590 thousands (UNICEF, 1999). Whereas the current Infant mortality rate is 70 per 1,000 live births and under 5 mortality rate is 98 per 1,000 live births and annual number of under 5 deaths is 2400 thousands (UNICEF, 2001).

As already pointed out in the present chapter, the health of the people is the wealth of the country. Among various factors affecting the health of the people, nutrition has been found to be the most important pre-requisite. Nutrition and health are complementary and also inseparable. These two factors are very strongly controlling the quality of life of man especially in the developing countries. While nutrition is regarded as a vital component of health, the latter is an ultimate objective of nutrition. Food provides nutrients, which are needed for giving energy, bodybuilding, repair of tissues, formation of enzymes etc. Foods vary in their composition. The availability of nutrients differs from food to food. In order to get a balanced diet, nutrients have to be provided in adequate and proper proportions.

World Health Organisation (2000) states that, Nutritional well-being firmly rests on a foundation of at least 4 main factors – food, care, health and environment. Caring for the nutritionally vulnerable includes the time, attention, and behaviour needed (in addition and complementary to household food security) to ensure food, health and love are sufficiently provided to ensure healthy nutrition. Among the range of caring behaviours are breast-feeding and appropriate complementary feeding for infants and young children, care and support for mothers during pregnancy and lactation, time and help to ensure adequate nutrition for the elderly, improving education, literacy, social security, employment opportunities and right of women. Nutritional well-being is particularly well correlated with women’s education, literacy and economic security.
UNICEF action in nutrition (2000) states that, translating nutrition strategy into real progress for children requires action across a broad range of areas. Improved nutrition in countries around the world has been achieved through approaches as diverse as fortifying staple foods, promoting breast-feeding, improving access to health services and education and instituting community growth monitoring and promotion programmes.

Misconception, confusion, and lack of motivation were found to be barriers to dietary change by many studies. We have now crossed the year of WHO’s call of “Health for All by 2000 AD”. At this juncture, this study helps to ascertain the nutritional knowledge, attitude and practice, among rural and urban mother and its impact on their children. These in turn help us to get a clear picture and show that how far we have achieved the goal of WHO.

1.11. Objectives of the Study

1.11.1 To find out and compare the socio-economic characteristics, demographic and mass media exposure variables among the selected rural and urban mothers in the study area

1.11.2 To ascertain and compare the levels of knowledge, attitude and practice of rural and urban mothers on child nutrition

1.11.3 To assess the nutritional status of the child in selected rural and urban areas and compare that with that of the nutritional knowledge, attitude and practice of their mothers

1.11.4 To assess the inter-relationship among knowledge, attitude and practice on child nutrition of selected rural and urban mothers

1.11.5 To suggest the nutritional concepts that have to be given emphasis in the nutritional education of the mothers on the basis of the major findings / major outcomes of the present study
1.12. Limitations of the Study

Some of the limitations of the present study are listed below:

✔ Since the study covers only a limited area, the results cannot be generalised to
  the whole universe
✔ Since the study is on health and nutrition that vary with climatic conditions
  due consideration was given while collecting primary data
✔ To some extent the nutritional status are determined by heredity factors, so the
  results were not be authenticated

1.13. Organisation of the Thesis

The chapterisation has been done in the following manner. The first chapter unfolds
the problem of the study in which the need and importance of mother’s education on
child nutrition which is needed for the growth and development of the young child
was presented. Further, the chapter discusses the various nutritional programmes
implemented all over the nation and the role of other international nutritional
institutions located all over the world was presented.

The second chapter critically examines the related studies carried out on knowledge,
attitude and practice of mothers on child nutrition and general nutritional studies
carried out at the national and international level.

The third chapter deals with the methodology of the study and explains the research
design, construction of interview schedule including the personal information
schedule, knowledge measurement schedule, attitude assessment schedule, practice
measurement schedule and child nutritional status measurement schedule and profile
of study area, variables used, data collection and statistical techniques applied.
The fourth chapter of the thesis deals with the analysis and interpretation of the study. The fifth chapter summarises the findings and conclusions and the suggestions for the future studies, followed by well-compiled bibliography and annexure containing the research tools used in the present study.

1.14. Summary of the Chapter

This introductory chapter has brought out the current nutritional status of the child at the international, national and state levels. It emphasizes the need for child nutritional education for mothers. Further, it also deals with the information on various nutritional programmes implemented in India for the betterment of mothers and children and it also provides information on the need for an assessment, objectives and limitations of the present study.