Chapter - I

INTRODUCTION

“Good health from childhood is the best blessing”

The human child is one of the most remarkable outcomes of evolution. The exceptionality lies not only in that there is orderly development of organic matter from a minute cell to a complete human form, but also in that, as every newborn grows, maturational changes unfold a fascinating array of abilities and skills.

1.1. Early childhood or pre school age: Childhood is called the “ideal age” for learning skills because children’s body are more pliable than those of adolescents and adults, children have fewer precious learned skills to conflict with new learning, they are more adventuresome and eager to learn, they enjoy repetition, and they have more time to devote to learning skills than they will have as they grow older (Hurlock, 2003). Childhood plays a vital role in the promotion of mental health. As viewed by the experts, in the normal child, the vast array of genetic, neuro-chemical, physiological, psychological, interpersonal and social processes of development follow a well-orchestrated course that transforms the curious infant into a competent adult. However, in less fortunate children, development goes awry. As a result, mental, Behavioral, and development disorders occur in every socioeconomic, racial and cultural group in the world (Rao, 2001). During the years from 2 to 6, often called the preschool years, children make the transition from toddlerhood to childhood (Hurlock, 2015). During the preschool age growth continues in spurts. The child spends quite a bit of energy in play. Annual gain in height and weight is only about 6-7 cms and 1.5 to 2 kg respectively.

1.2 Physical development in early childhood:

Height: In this age the average annual increase in height is three inches. By the age of six, the average child measures 46.6 inches.
Weight: The average annual increase in weight is 3 to 5 pounds. At age six, children should weigh approximately seven times as much as they did at birth. The average girl weighs 48.5 pounds and the average boy weighs 49 pounds.

Body proportions: Body proportions change markedly, and the “baby look” disappear. Facial features remain small but the chin become more pronounced and the neck elongates. There is a gradual decrease in the stockiness of the trunk, and the body tends to become cone-shaped, with a flattened abdomen, a broader and flatter chest, and shoulders. The arms and legs lengthen and may become spindly, and the hands and feet grow bigger.

Bones and Muscles: The bones ossify at different rates in different parts of the body, following the laws of development direction. The muscles become larger, stronger, and heavier, with the result that children look thinner as early childhood progresses, even though they weigh more.

Teeth: During the first four to six months of early childhood, the last four baby teeth (the back molars) erupt. During the last half year of early childhood, the baby teeth begin to be replaced by permanent teeth. The first baby teeth to appear are the front central incisors. When early childhood ends, the child generally has one or two permanent teeth in front and some gaps where permanent teeth will eventually erupt.

Children have right to the highest attainable standard of physical and mental health, adequate nutritious food; and physical, mental, spiritual, moral and social development. Children reflects the development potential and prospects of a country. India, being a developing country needs healthy children with better brain power. But it is quite unfortunate that our country is the home of large population of malnourished children in the world. Four hundred million suffer daily, which is a greater problem than in Sub-Saharan Africa. Substantial improvements have been made in health and well being since India’s independence since 1947 but still large number of children under the age of five are malnourished.
1.3. Definition of Malnutrition

Malnutrition is an impairment of health resulting from deficiency, excess or imbalance of nutrients. It is defined as “A pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients.”

We can also define Malnutrition as deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients. The term malnutrition covers two broad groups of conditions i.e. ‘undernutrition’ and ‘overnutrition’. Undernutrition stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals). The other is overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and cancer).

1.3.1 Levels and Trends in Child Malnutrition: Key Findings of UNICEF/WHO/World Bank Joint Child Malnutrition Estimates

Childhood malnutrition is pervasive problem in the world and contributes to nearly half of all deaths in children under fives specially in Asia and Africa. This leads to the unnecessary loss of about 3 million young lives per year. Malnutrition places children at greater risk of dying from common infections, amplifies the frequency and severity of such infections, as well as contributes to late recovery. In addition, the interaction between malnutrition and infection can create a potentially deadly cycle of worsening illness and deteriorating nutritional status. Poor nutrition in the first 1,000 days of a child’s life can also lead to stunted growth, which is irreversible and associated with impaired cognitive ability and reduced school and work performance.

STUNTING: Stunting refers to the children who are too short for their age. Stunting is the result of chronic or recurrent malnutrition and is the failure to grow both physically and cognitively. The devastating effects of stunting can last lifetime.

In 2016, globally an estimated 22.9 per cent or 154.8 million children under 5 children were affected by stunting. Between 1990 and 2014, globally prevalence of
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stunting fell from 39.6 per cent to 23.8 per cent, and the number of children affected declined from 255 million to 155 million. In 2016, more than half of all stunted children under 5 lived in Asia (58%) and more than one third (33%) lived in Africa (UNICEF/WHO/World Bank Joint Child Malnutrition Estimates, 2017)

UNDERWEIGHT: Underweight: Underweight refers to the children who are too thin for their age. In another way we can say that being underweight means a child’s weight is less than the normal amount for his/ her age. Weight varies over time and therefore reflects both acute as well as chronic malnutrition. Underweight children’s are likely to be less fit and active, which would also increase the risk of cardiovascular diseases. Immune system of underweight children is also much weaker than the normal one.

Worldwide, 95 million children under age 5 were underweight in 2016. Pervasiveness of underweight continues to decline, but at a slow rate. Between 1990 and 2016, it reduced from 24.8 per cent to 14.0 per cent of the under 5 population worldwide. Prevalence of underweight has been observed maximum in Oceania (18.9%), Asia (17.1%) and Africa (15.7%), in 2016 (UNICEF/WHO/World Bank Joint Child Malnutrition Estimates, 2017).

WASTING AND SEVERE WASTING: Wasting refers to the children who are too thin for their height. Wasting, or acute malnutrition, is the result of current quick weight loss or the failure to put on weight. A child who is moderately or severely wasted has an increased risk of death.

In 2016, wasting is constantly threaten the lives of an estimated 7.7 per cent or nearly 52 million children under 5 globally. In 2016, more than two thirds of all under 5 wasted children lived in Asia (69%) and more than one quarter lived in Africa i.e 27%. (UNICEF/WHO/World Bank Joint Child Malnutrition Estimates, 2017).

1.3.2 Malnutrition in India: A Snapshot

MDG report of 2012 indicates that 80% of the world’s undernourished children live in just 20 countries including India. Statistics compiled by the Food and Agricultural Organisation (2016) show that the state of hunger and malnutrition in
India is disturbing. India has the utmost number of undernourished (hungry) people in the world (194.6 million or 15 percent of India's total population during 2014-16). Children and youth in this condition suffer from various nutritional deficiencies which negatively impact their health. Every year, malnutrition in under-five children also results in almost half of the 1.3 million deaths occurring in the country. In India, NFHS-4 (2015-16) data shows the following:

- 38 percent of children below five years (urban: 31%, rural: 41%) are stunted (low height for age).
- 21 percent (urban: 20%, rural: 22%) are wasted (low weight for height).
- 36 percent (urban: 29%, rural: 38%) are underweight (low weight for age).

### Nutrition Status of Indian Population, by State/UT, 2015-16

<table>
<thead>
<tr>
<th>State/Union Territory</th>
<th>Children (Under 5 years)</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stunted</td>
<td>Wasted</td>
<td>Underweight</td>
<td></td>
</tr>
<tr>
<td>Andaman &amp; Nikobar islands (UT)</td>
<td>23.3</td>
<td>18.9</td>
<td>21.6</td>
<td></td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>31.4</td>
<td>17.2</td>
<td>31.9</td>
<td></td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>29.4</td>
<td>17.3</td>
<td>19.5</td>
<td></td>
</tr>
<tr>
<td>Assam</td>
<td>36.4</td>
<td>17.0</td>
<td>29.8</td>
<td></td>
</tr>
<tr>
<td>Bihar</td>
<td>48.3</td>
<td>20.8</td>
<td>43.9</td>
<td></td>
</tr>
<tr>
<td>Chandigarh (UT)</td>
<td>28.7</td>
<td>10.9</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>Chhatisgarh</td>
<td>37.6</td>
<td>23.1</td>
<td>37.7</td>
<td></td>
</tr>
<tr>
<td>Daman &amp; Diu (UT)</td>
<td>23.4</td>
<td>24.1</td>
<td>26.7</td>
<td></td>
</tr>
<tr>
<td>Dadar &amp; Nagar Haweli (UT)</td>
<td>41.7</td>
<td>27.6</td>
<td>38.9</td>
<td></td>
</tr>
<tr>
<td>Delhi NCT (UT)</td>
<td>32.3</td>
<td>17.1</td>
<td>27.0</td>
<td></td>
</tr>
<tr>
<td>Goa</td>
<td>20.1</td>
<td>21.9</td>
<td>23.8</td>
<td></td>
</tr>
<tr>
<td>Gujarat</td>
<td>38.5</td>
<td>26.4</td>
<td>39.3</td>
<td></td>
</tr>
<tr>
<td>Haryana</td>
<td>34.0</td>
<td>21.2</td>
<td>29.4</td>
<td></td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>26.3</td>
<td>13.7</td>
<td>21.2</td>
<td></td>
</tr>
<tr>
<td>Jammu and Kashmir</td>
<td>27.4</td>
<td>12.1</td>
<td>16.6</td>
<td></td>
</tr>
<tr>
<td>Jharkhand</td>
<td>45.3</td>
<td>29.0</td>
<td>47.8</td>
<td></td>
</tr>
<tr>
<td>Karnataka</td>
<td>36.2</td>
<td>26.1</td>
<td>35.2</td>
<td></td>
</tr>
</tbody>
</table>
Above table concludes that the nutritional status of under fives children is more critical in the states/ UTs of Bihar, Jharkhand, Uttar Pradesh and Dadra and Nagar Haveli whereas, in Kerala and Mizoram situation is far better.
1.3.3 A Web of Factors Causing Malnutrition:

**Figure 1.1., Causal framework of malnutrition (UNICEF 2004)**

*Source: Md. Rahman, N., Malnutrition types and Causes (2015).*

The global predicament of malnutrition can be addressed and understood with the aid of the framework, show in **figure 1.1**, developed by the United Nations Children’s Fund (UNICEF, 2004). The framework classified the cause of malnutrition as Immediate, Underlying and Basic causes.

**Immediate causes:**

The immediate cause of undernutrition is a consequence of a lack of dietary intake, and diseases. This can be caused by consumption of very less nutrients or an infection which increases requirements and prevent the body from absorption of nutrients. A. Inadequate dietary intake includes: ● *Decreased dietary intake* due to Dysphasia (altered taste), Anorexia, Abdominal pain/nausea, Bowel obstruction. ● *Increased nutrient losses* such as Bleeding, fistulas, diarrhea etc. and ● *Increased*
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nutrient requirements during Fever/sepsis etc. B. Disease includes condition of any infection or disease like diarrhea, respiratory infection, fever, malaria, diseases caused by incomplete immunization like vitamin A deficiency, measles, tetanus, diphtheria, whooping cough etc.

Underlying causes:

The underlying causes of malnutrition can be grouped into three broad categories which include: • Household food insecurity: Household food insecurity can be termed as limited or disputable access to safe food in sufficient quality and quantity to make sure adequate intake and a healthy life for all members of the family. Availability and accessibility of food must not only be in the market but people must be able to afford it. Additionally, children don’t get sufficient food as well as the precise balance of fat, protein, carbohydrates, Vitamins and minerals which adversely affects their growth and development. • Inadequate care: Caring practices such as breastfeeding, appropriate supplementary feeding, as well as hygiene and health seeking behaviors support good nutrition to the children. Disruption in these practices can lead to poor dietary intake and increased infection. Increased infection adversely affects various defense mechanism of child’s body. • Unhealthy household environment and lack of health services (poor public health) is the third category of the underlying causes of undernutrition which refers poor public health. This includes issues concerning to the healthy environment, exposure to disease and access to basic health facilities. The healthy environment is affected by approach to clean, safe water and sanitation, the presence of parasites causing malaria and the quality of shelter. Whereas, access to basic health services decided the level to which infection and disease can be prevented or treated.

Basic causes:

The third contributing factors to malnutrition is considered as Basic causes, also called national or root causes of malnutrition include poor availability and control of resources (political, social, ideological and economic), environmental degradation, deprived farming, war, political instability, urbanization, population growth and size, distribution, conflicts, trade agreements and natural disasters, religious and cultural factors.
Basic causes mainly refer as what resources are available (human, structural, financial) and how they are being used (the political, legal and cultural factors). These can be said as actual reasons behind the underlying causes. For attaining good nutrition the best efforts of households may be defeated by political, legal and cultural factors. These include the extent to which the rights of women and girls are protected by laws and customs; the political and economic system that determines how income and assets are distributed; and the ideologies and policies that govern the social sectors.

1.3.4 Signs and Symptoms of malnutrition

A symptom is something that a patient experience and reports, while a sign is something other people, such as the doctor detect. For example, pain may be a symptom while a rash may be a sign.

**Symptoms of malnutrition include:**
- Loss of body fat (adipose tissue)
- Problems in Breathing, a higher risk of respiratory failure
- Weaken immune system as a result risk of infections increases.
- Longer recovery time from infections
- Longer recovery from illnesses
- Reduced muscle mass
- Tiredness and fatigue
- Irritability.

**Signs of malnutrition: In more severe cases**-
- Skin become thin, dry, inelastic, pale, and cold
- Eventually, as fat in the face is lost, the cheeks look hollow and the eyes sunken
- Hair becomes dry and sparse, falling out easily
- Sometimes, severe malnutrition may lead to unresponsiveness (coma)
- If calorie deficiency continues for long time, there may be liver, heart, and respiratory failure
- Total starvation is said to be critical within 8 to 12 weeks (no calorie consumption at all).
### Clinical signs of severe malnutrition

<table>
<thead>
<tr>
<th>Site</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Moon face (kwashiorkor, simian facies (marasmus))</td>
</tr>
<tr>
<td>Eye</td>
<td>Dry eyes, pale conjunctiva, Bitot’s spots (vitamin A), periorbital edema</td>
</tr>
<tr>
<td>Mouth</td>
<td>Angular stomatitis, cheilitis, glossitis, spongy bleeding gums (vitamin C), parotid enlargement</td>
</tr>
<tr>
<td>Teeth</td>
<td>Enamel mottling, delayed eruption</td>
</tr>
<tr>
<td>Hair</td>
<td>Dull, sparse, brittle hair, hypopigmentation, flag sign (alternating bands of light and normal color), broomstick eyelashes, alopecia</td>
</tr>
<tr>
<td>Skin</td>
<td>Loose and wrinkled (marasmus), shiny and edematous (kwashiorkor), dry, follicular hyperkeratosis, patchy hyper- and hypopigmentation, erosions, poor wound healing</td>
</tr>
<tr>
<td>Nail</td>
<td>Koilonychias, thin and soft nail plates, fissures or ridges</td>
</tr>
<tr>
<td>Musculature</td>
<td>Muscles wasting, particularly in the buttocks and thighs</td>
</tr>
<tr>
<td>Skeletal</td>
<td>Deformities usually a result of calcium, vitamin D, or vitamin C deficiencies</td>
</tr>
<tr>
<td>Abdomen</td>
<td>Distended - hepatomegaly with fatty liver, ascites may be present</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Bradycardia, hypotension, reduced cardiac output, small vessel vasculopathy</td>
</tr>
<tr>
<td>Neurologic</td>
<td>Global development delay, loss of knee and ankle reflexes, impaired memory</td>
</tr>
<tr>
<td>Hematological</td>
<td>Pallor, petechiae, bleeding diathesis</td>
</tr>
<tr>
<td>Behavior</td>
<td>Lethargic, apathetic</td>
</tr>
</tbody>
</table>

Children who are severely malnourished usually experience slow behavioral and intellectual development, which may lead to intellectual disabilities. Even after treatment, in some cases undernutrition may have long-term effects in children, with impairments in mental function and digestive problems.
1.4 Child Malnutrition (The Challenge): A Multifaceted Public Health Problem

Child malnutrition is a multifactorial community health problem which needs focussed consideration and coordination across sectors. Children are malnourished due to a combination of factors like lack of quality food, suboptimal feeding practices, repeated attacks of infectious diseases and pervasive undernutrition. Lack of toilets and other forms of improved sanitary practices also result in repeated bouts of diarrheal disease and high prevalence of low birth weight babies. A six state assessment of social determinants of undernutrition disclosed that apart from food security, in India the significant social determinants of undernutrition are inadequate and inappropriate feeding practices, mothers/caregivers have limited time for food preparation and feeding and also marketing of commercial ready-to-eat food. On the basis of a detailed understanding of the factors responsible for the occurrence of malnutrition India's Nutrition Policy of 1993 was shaped (MHRD, 1993). The policy called for the acceptance of a multi-sectoral approach and the execution of a wide range of measures to attain the goal of optimum nutrition for all. Consequently, various strategies, programmes and missions were launched on numerous occasions (Box 1). All the same poor responsiveness of government programmes and schemes to address child nutrition is also one of the major factor responsible for not to combat malnutrition. India has several nutrition and public safety net programs (Box 1), some of which (such as Integrated Child Development Services [ICDS] and the Public Distribution System [PDS]) have had success in many states in addressing the needs of poor households. All these programs have potential, but they do not form an ample nutrition strategy, and also not addressed the nutrition problem effectively. Existing programs and schemes specifically focused on undernutrition in children, like Mid-Day Meal Scheme and Integrated Child Development Services (ICDS) Scheme, are continuing without strengthening. Infant and Young Child Feeding (IYCF) strategy has a potential to effectively prevent undernutrition. Integrated Management of Neonatal and Childhood Illness (IMNClI) strategy includes early detection and management of undernutrition in children younger than 5 years. However, due to slow rate of implementation and limited exposure to health programs guided by these strategies, no evident impact is seen on reduction in malnutrition among under five children. Special interventions have been established to recognize and handle children
with severe acute malnutrition (SAM) in order to combat death and disability as a consequence of undernutrition. WHO guidelines are widely used for the identification of 6-60 months old infants and children for the management of SAM children (WHO, 2009). Under National Rural Health Mission, Nutrition Rehabilitation Centres (NRCs) have been set up at health facilities in many districts in India with a purpose to improve the quality of care being provided to children with SAM and to reduce child mortality (MHFW, 2011). But limited scope of performance directed at the tip of iceberg does not help in combating the number of under-five children with malnutrition. All of these programs have potential, but they do not form a comprehensive nutrition strategy, and they have not addressed the nutrition problem effectively so far.

**Box 1: Government Policy Interventions and Programmes to Combat Malnutrition**

<table>
<thead>
<tr>
<th>Direct Policy Measures</th>
<th>Plans, Programmes and Missions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Expand the safety net through ICDS to cover all vulnerable groups (children, adolescent girls, mothers, expectant women)</td>
<td>• Mid-day Meal Programme, 1962-63</td>
</tr>
<tr>
<td>• Fortify essential foods with appropriate nutrients (eg., salt with iodine and/or iron)</td>
<td>• Goiter Control Programme, 1962 (now known as National Iodine Deficiency Disorders Control Programme)</td>
</tr>
<tr>
<td>• Popularize low cost nutritious food</td>
<td>• Special Nutrition Programme, 1970-71</td>
</tr>
<tr>
<td>• Control micro-nutrient deficiencies amongst vulnerable groups</td>
<td>• Balwadi Nutrition Programme, 1970-71</td>
</tr>
<tr>
<td><strong>Indirect Policy Measures</strong></td>
<td>• Nutritional Anaemia Prophylaxis Programme, 1970</td>
</tr>
<tr>
<td>• Ensure food security through increased production of food grains</td>
<td>• Prophylaxis Programme against Blindness due to Vitamin A Deficiency, 1970</td>
</tr>
<tr>
<td></td>
<td>• Integrated Child Development Services (ICDS), 1975</td>
</tr>
<tr>
<td></td>
<td>• National Diarrhoeal Diseases Control Programme, 1981</td>
</tr>
</tbody>
</table>
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- Improve dietary pattern by promoting production and increasing per capita availability of nutritionally rich food
- Effecting income transfers (improve purchasing power of landless, rural and urban poor; expand and improve public distribution system)
- Other: Implement land reforms (tenure, ceiling laws) to reduce vulnerability of poor; increase health and immunization facilities, and nutrition knowledge; prevent food adulteration; monitor nutrition programmes and strengthen nutrition surveillance; community participation
- Wheat-based Supplementary Nutrition Programme, 1986
- National Plan of Action on Nutrition, 1995
- Public Distribution System, 1997
- National Health Mission, 2013 (subsumes former Rural & Urban Health Missions)
- National Iron+ Initiative, 2013
- Promotion of Infant & Young Child Feeding Practices Guidelines, 2013
- Weekly Iron & Folic Acid Supplementation, 2015
- Establishment of: Nutritional Rehabilitation Centres; Village Health Sanitation & Nutrition Committee
- Bi-annual Vitamin-A Supplementation
- Village Health & Nutrition Days (at Anganwadi centers)


**Note:** Year mentioned against the name of a programme denotes the year in which the programme was launched in the country for the first time.
1.5 Rational of the study:

At the dawn of a new millennium, in September 2000, United Nations Millennium Declaration contained a statement of values, principles and objectives for the international agenda for the twenty-first century. It also set deadlines for many collective actions. The framework of MDGs encompasses of achievable goals and ‘realistic’ targets. To reduce the proportion of under five children with undernutrition" was one of the targets of Goal 1 (Eradicate extreme poverty and hunger; To reduce by half the number of people living in absolute poverty, by 2015) or Goal 4 (Reduce child mortality; To reduce by two thirds the number of children that die before their fifth birthday, by 2015).

With respect to MDG 1: United Nation had monitored that India was far behind to the 2015 target. In 1990, when these goals were formulated 53.5 % of all Indian children were malnourished and the target was to reduce this percentage up to 26% by 2015. But report (figure 1.2) shows that the target of halving this proportion of malnourished children to 26% was not achieved (UNDP, 2015 & MoSPI, 2016).

Under MDG 4, the target was to reduce child Mortality (Under 5) by two-thirds between 1990 and 2015. At the national level, it translates into a goal of reducing Infant Mortality Rate from 79 per thousand live births in 1990 to 26 and Under 5 Mortality Rate from 109 to 36 in 2015 (NFHS 1, 1992-93). There has been a constant decline in Infant Mortality Rate (IMR) and Under-Five Mortality Rate (U5MR) in India and also the rate of decline in current decade is higher than in the previous but, the target was not achieved (Figure 1.3 and 1.4).

At the end of the MDG period in 2015, 17 Sustainable Development Goals (SDG) were announced by the UN in 2016 for the period ending 2030.

- SDG 2 entitles to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture
- SDG 3 calls to Ensure healthy lives and promote well-being for all at all ages.
Fig. 1.2: Nutritional Status of Under-Five Children in India: Source: NFHS-4, 2015-16.

Figure 1.3: Trends in infant mortality (Deaths per 1000 live births) Source: NFHS-4, 2015-16.
From the above reports and discussions we can state that child malnutrition in India happens very early in life. Their nutritional status deteriorates quickly over the first five years of life, and once this damage is happened recovery is almost impossible. Therefore, improving the quality of foods, feeding practices, and nutrition of children in first five years of life, symbolize a crucial window of opportunity to break the intergenerational cycle of malnutrition. If this critical opportunity is overlooked, child malnutrition will continue to sustain: malnourished girl will become malnourished women, who will give birth to low birth weight infants, they will suffer from poor nutrition in the first five years of life. The best opportunity to smash this cruel intergenerational cycle is to focused efforts on improving the nutrition of infants and young children from conception to first five years of life.

Therefore, to address malnutrition in preschool children combination of interventions are required, which involve improved food availability, adequate consumption of nutritious food, full immunization and bi-annual Vitamin A supplementation, frequent appropriate and active feeding for children during and after illness, including oral rehydration with zinc supplementation during diarrhoea and increased awareness amongst caregivers about nutrition and health care. Also proper
implementation and effective monitoring of those interventions are required for achieving goals and targets of SDG by 2030.

Low maternal knowledge and awareness regarding nutrition, feeding practices, care during disease, hygiene and sanitation etc have been identified as major determinants of Malnutrition in children.

**Nutrition education** is very important as it ensure endorsement of enhanced lifelong healthier practices. It is a process where beliefs, attitudes and influences are changed to promote improved nutritional practices based on individual needs and available resources, improve the quality of life by educating people (FAO, 2008). It involves current knowledge and how to improve that knowledge as well as promoting healthier practices within cultural boundaries.

Keeping this background in consideration present study was performed in rural areas of Mirzapur district, in which knowledge and awareness was given to mothers of malnourished children in order to reduce malnutrition among them.

### 1.6. Objectives of the Study:

1. To study the socioeconomic profile of family of preschool children (24 months- 42 months).
2. To assess the nutritional status of preschool children.
3. To examine the association between severity of malnutrition and family background of children as well as various factors associated with malnutrition.
4. To develop educational module for educating mothers for reducing malnutrition.
5. To assess the influence of nutritional advice given to mothers in order to bring improvement in the nutritional status of their malnourished children.