Malnourished Children in a Rehabilitation Home

In Kathmandu district- A Sociological Study

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Letter of Recommendation

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This dissertation entitled "**Malnourished Children in a Rehabilitation Home in Kathmandu District- A Sociological Study"** prepared and written by **Ms Shuvechya Nepal** has been accepted as the partial fulfillment of the requirement for the Degree of Masters of Arts in Sociology.

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ACRONYMS

CBS	: Central Bureau of Statistics
CRC	: Convention on the Rights of the Child
DGLV	: Dark Green Leafy Vegetables
FNC	: Friend of Needy Children
FWDR	: Far Western Development Region
IFCH	: International Friendship Children's Hospital
MZH	: Mahakali Zonal Hospital
NDHS	: Nepal Demographic and Health Survey
NPC	: National Planning Commission
NRH	: Nutritional Rehabilitation Home
NYF	: Nepalese Youth Foundation
PEM	: Protein Energy Malnutrition
RUWDUC	: Rural Women’s Development and Unity Center
SD	: Standard Deviation
U5MR	: Under Five Mortality Rate
UNICEF	: United Nations Children Emergency Fund
WHO	: World Health Organization

CHAPTER 1
INTRODUCTION

1.1. BACKGROUND

Malnutrition is a state in which either the food intake is inadequate in same respect to meet the body needs, or in which physiological and environmental conditions are such that the body is unable to utilize sufficient food materials to provide for its proper growth, maintenance and repair. It is the pathological condition brought about by the inadequacy of one or more of the essential nutrients that the body cannot make but that are necessary for survival, for growth and education, and for the capacity to work. The dominant malnutrition problem in large population is insufficient intake of food. (WHO, 2000)

Malnutrition remains one of the most common causes of morbidity and mortality among children worldwide. It is a serious problem in many parts of the world, especially in developing countries. In the world scenario more than 800 million people are suffering from malnutrition and hunger, among them 770 million from developing countries (Shakya, 2002).

A healthy child grows at a genetically predetermined rate that may be compromised or accelerated by under nutrition, imbalanced nutrient intake, or over nutrition. Physical growth is one of the major criteria to assess the nutritional status of infants and children. Nutrition assessment, counseling and education provide the framework for the high-quality nutrition care. These components of nutrition services should be considered integral parts of health programs that provides both food and nutrition services to infants, children and adolescents and to those individual with special health care (Shrestha, 2003).

It is clearly recognized that health, nutrition and care of children are closely interrelated. Health is an important consideration for human beings. According to RUWDUC (Rural Women's Development and Unity Centre), food, being the focal point of good health, it is very important to have an adequate knowledge about balanced diet. Since food is the vital factor responsible for

the process of growth, maintenance and development of human body, it becomes important to have balanced diet and to know about the effects of imbalanced diet. It is therefore necessary to understand the context of food what people eat and its related implications to malnutrition of people in the given society.

'Malnutrition' means 'undernourished or in some cases badly nourished' but it is more than a measure of what we eat in everyday life. It is characterized by inadequate intake of protein, energy and micronutrients while consuming food.

Malnutrition has caused a high degree of mortality in various developing countries. Malnutrition, a wide spread problem, weakens the immune systems and worsens illness. Malnutrition reduces the quality of life and financially drains families, communities and countries. The number of malnourished children can be improved only when the income-generating prospects can be improved. Poor nutrition is the cause of poverty, so we need to teach people how to use the food stuffs they have."

Nutrition is seldom considered as human rights in although the concept of nutrition is implicit in the commonly cited rights to "food" and "freedom" from hunger. However, if a broader definition of nutrition is used-one that encompasses food, health and care- then nutrition is an important element throughout the Convention on the Rights of the Child (CRC) (RUWDUC, 2010).

Good nutrition in the early childhood plays a vital role for the growth of a healthy child. However, in the developing countries, the nutritional status has not much improved despite decades of nutrition programs and projects. In a country like Nepal where 34.6% of the rural populations are still below the poverty line (NLSS,2003-04), it is not surprising that half of the children under the age of five years are malnourished. Today, in Nepal, poor nutrition has become one of the leading causes of death for young children and those who survive severe malnutrition are subjected to permanent physical and mental retardation that can limit their potential forever.

Malnutrition remains a serious obstacle for survival, growth, and development. Malnutrition has evolved as an unavoidable problem for children and women in Nepal. Even mild and moderately malnourished children are likely to die from common childhood diseases. Malnourishment afflicts more than half the children under five years of age in Nepal, and is one of the leading causes of death in this age group. The cause of the problem is both ignorance and poverty. In Nepal, since 1975, various researches on different aspects of nutrition have been carried out. According to a survey report, the chronic malnutrition rate is 52% in Nepal (WHO, 2001).

The UNICEF nutrition strategy (UNICEF, 1997) consists of broader concept of malnutrition, in which household food security, adequate care of children and women and access to basic health services, together with a healthy environment are identified as three necessary conditions of nutritional well-being or individual nutritional security 'food', 'health' and 'care' are all recognized rights in the Convention on the Rights of the Child (CRC), which makes this convention unique in promoting children's right to nutrition.

Malnutrition affects both mental and physical development limiting human potential and increasing vulnerability to life threatening illness. Balanced diet with various kinds of nutrition and care can change children's life in improving their physical and mental development to protect their health and lay a firm foundation with active human resource for the future generation.

Nepalese children suffer mainly from two types of malnutrition, they are Marasmus and Kwashiorhor. Marasmus is a wasting of muscle and tissue, and the weight is less than -1 Standard Deviation (SD). Kwashiorhor is characterized by stunted growth and edema (swelling of body). The severity of malnutrition in a child is generally classified into three levels: mild, moderate and severe (Chaulagain, 2006).

Malnutrition can occur because of the lack of a single vitamin in the diet, or it can be because of improper diet. Starvation is a cause of malnutrition. Malnutrition also occurs when adequate nutrients are consumed in the diet, but one or more nutrients are not digested or absorbed properly. Malnutrition may be mild enough to show no symptoms. However, in some

cases it may be so severe that the damage done is irreversible, even though the individual survives.

Worldwide, malnutrition continues to be a significant problem, especially among children who cannot fend adequately for themselves. Poverty, natural disasters, political problems, and war all contribute to conditions -- even epidemics -- of malnutrition and starvation, and not just in developing countries. Symptoms vary with the specific malnutrition-related disorder. However, some general symptoms include fatigue, dizziness, weight loss and decreased immune response. If untreated, malnutrition can lead to mental or physical disability, illness, and possibly death. (RUWDUC, 2010)

Protein-energy malnutrition is one of the most prevalent problems of nutrition causing death and disability among children in developing countries like Nepal. Growth retardation and wasting are the main symptoms of under nutrition. Growth denoted weight and height of the children comparing with age which assists to measure nutritional status of children. Due to malnutrition many disorders make the children suffer. They can be taken as under nutrition, over nutrition, imbalance and specific deficiency. Among these disorders, perhaps over nutrition is not associated with Nepalese children. There are numerous causes of malnutrition such as large family size, poor environmental condition, pre-mature termination of breast-feeding, failure of lactation and adverse cultural practices relating to child rearing and caring (Park and Park, 1989).

Whatever may be the cause of higher malnutrition among children in Nepal, the only solution available for them is the appropriate treatment offered by hospitals and rehabilitation centers. In comparison to the large number of malnourished children, the hospitals and rehabilitation centers are few. The only rehabilitation home in Kathmandu is The Nutritional Rehabilitation Home (NRH) working for the rehabilitation of malnourished children for more than a decade (NRH, 1998). There are various standards to define the severity of malnutrition but the NRH has adopted the guidelines prescribed by World Health Organization (WHO). The WHO standard defines the malnutrition as follows:

- Mild: <-1SD
- Moderate: <-2SD to 2SD
- Severe: <-3SD to 4SD

The child suffering from <-1SD reflects that the child is in the initial period of malnutrition in which the child be cured easily through proper dietary intake and is also be termed as the mild degree of malnutrition. The child falling under <-2SD to 2SD stage reflects that the child is suffering from the moderate degree of malnutrition whereas the child falling under <-3SD to 4SD degree of malnutrition states that the child is severely malnourished and needs to be gone through a proper medical attention along with proper diet.

1.2. STATEMENT OF THE PROBLEM

Human body requires health and nutritive food for its physical and mental development which can be obtained through balanced diet. However most of the people in Nepal are not able to get proper diet because of poverty, lack of education and ignorance. Nutritional problem is arising as a crucial problem in Nepal. Socio-economic constraints, faulty feeding/eating habits, inadequate food consumption and lack of nutrition education are the leading factors to individual health status, especially of children. These factors cause different types of diseases to the children. Because of lack of nutrition education, parents are not able to provide with the proper quantity of nutrient substances to their children.

In Nepal the importance in nutrition can be taken as a challenge as many child are suffering from the problem of improper dietary factors which can be due to social or cultural aspects prevalent within the society such as lack of education, different food controversy within the society, much preference given during the birth of a boy child than a girl child. With a very low per capita income of $472 (CBS, 2010), for majority of Nepalese population, it is very tough to fulfill the basic needs. The per capita income in rural areas is only Rs 13,534) per annum (NLSS II, 2003-04, p.38). In such a economic situation, malnutrition is a big risk for young children in the rural area due to poor economic status of a family as most of the family in Nepal are a large family and are fully dependent upon agriculture for their living. Poor nutrition reduces the resistance of younger children and thus infectious diseases such as measles, dysentery, and diarrhea have become killer diseases for the young children in Nepal. Nepal has still one of the highest infant mortality rates in the world i.e. 64 deaths per thousand live births in 2001(NPC 2003).

Malnutrition is known to effect large number of infants and pre-school children in their mental as well as physical development. Malnutrition is associated not only with poverty but also many other socio-cultural factors as well. Therefore, it is necessary that the malnutrition issue be studied in terms of many other related factors like socio-economic condition of people, knowledge of mother on nutrition, cultural practices on food and food habits, and so on.

Majority of the rural populations in Nepal still consult dhami, jhakri, and traditional faith healers, for physical ailments. If the patient is not cured, then only they come to the hospital when the case of malnourishment becomes severe and near to fatal condition. Therefore, it is very tough for the hospitals and rehabilitation centers to cope up with the problem once the sick child is brought there (Baidhya, 1982).

There is no doubt that the initial period of child's health is very important as it is sure to affect not only their life but also their family, society and the nation as a whole.

This study attempts to answer the following research questions:

(a.) What are the major social factors that lead to malnutrition?
(b.) What are the feeding practices for the children kept in NRH?
(c.) Whether and how the ethnic/caste background of children play important role on nutritional status, knowledge and practice?
(d.) What is the nutritional status of the children across various socio-economic strata?

The research focused on finding the existing fact regarding the malnourished children in NRH of Kathmandu District. The purpose of the research is to access the mother/caretaker's knowledge on malnutrition, the feeding practice of the NRH and the social and cultural factors that leads to malnourishment.

1.3. OBJECTIVES OF STUDY

The general objective of the study is to study the social factors that lead to malnutrition of children in Nepal. The following are the specific objectives of the proposed study:

(a.) To identify the feeding practices of children in Nutritional Rehabilitation Home (NRH),
(b.) To explore the nutritional knowledge and awareness of mothers on malnutrition, and
(c.) To analyze the social and cultural factors that lead to malnutrition.

1.4. RATIONALE OF THE STUDY

The study evaluates the nutritional knowledge of the mothers and their understanding towards malnutrition. The study sheds light in the major social factors for malnutrition and covers the ethnic/caste background of malnourished children and its consequences on nutritional knowledge and practice. The significance of the study also lies in the feeding practices of the children in the NRH and the social and cultural factors that lead to malnutrition.

How can the children make their future bright? They have no future because of nutritional problem. The unhealthy environment is not good for their better life. Children are the assets of a country and thereby, healthy children mean prosperous future of the country. Therefore, there is need to understand the nutritional problems of children. Nutritional problem now-a-days is arising as a crucial problem in our country. Socio-economic constraints, faulty feeding/eating habits, inadequate food consumption, traditional and cultural constraints and lack of nutrition education are the leading factors to individual health status, especially of children. These factors cause different types of diseases to the children. Because of the lack of nutrition education, parents are not able to provide with the proper quantity of nutrient substances to their children.

The majority of the Nepalese people suffer from protein-energy malnutrition and other forms of malnutrition. Improvement of nutritional status is an indication of national development. Nutritious food and healthy citizen are prerequisites for national development. To improve the

nutritional status of the children it is essential to identify the resent nutritional practice amongst them. The people, who have not appropriate knowledge and practice on nutrition, face many problems. This study played an important role to identify the existing nutritional status of those residing in the NRH. This study also provides suggestion to minimize the nutritional problems. In the long run, the present study will add on more contribution on the study of nutritional sector carried out in different parts of the country.

1.5. OPERATIONAL DEFINITIONS OF IMPORTANT TERMINOLOGY

i. Nutrition

Nutrition is dynamic process in which the food is consumed and utilized for nourishing the body. Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity (WHO, website-http://www.who.int/en/).

ii. Malnutrition

Malnutrition has been defined as a pathological state resulting from a relative or absolute deficiency or excess of more essential nutrients.

Malnutrition is a condition of undernourishment or underweight. It is seen in boys and girls at any period after infancy or in childhood. It is an important condition, very often neglected; and when neglected may lead to serious consequences. It may lay the foundation for poor physical development or ill health in adult life, or may lead to some serious disease like tuberculosis (Clark, 1921)

iii. Undernutrition

Undernutrition is defined as the outcome of insufficient food intake and repeated infectious diseases. It includes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (wasted) and deficient in vitamins and minerals (micronutrient malnutrition). (UNICEF)

iv. Overnutrition

This is the pathological state resulting from the consumption of excessive quantity of food over an extended period of time.

v. Protein-Energy Malnutrition

Protein-Energy Malnutrition is the form of malnutrition when deficiency takes place with both protein and calories.

vi. Nutritional Status

The nutritional status of a community is the sum of the nutritional status of the individuals who forms the community. The nutritional status of the people in a country, which is shown by the well-being and socio-economic condition, that depends on the family size, available food consumption, total food production by family members. An important consideration about maternal diet during lactation, infant and child feeding is to prevent childhood disease in the community.

The condition of health of a person that is influenced by the intake and utilization of nutrients is called nutritional status.

vii. Anthropometric Measurement

The measurement relating to the measurement of body such as age, height, weight, arm circumference, chest circumference, head circumference, and so on is included within anthropometric measurement.

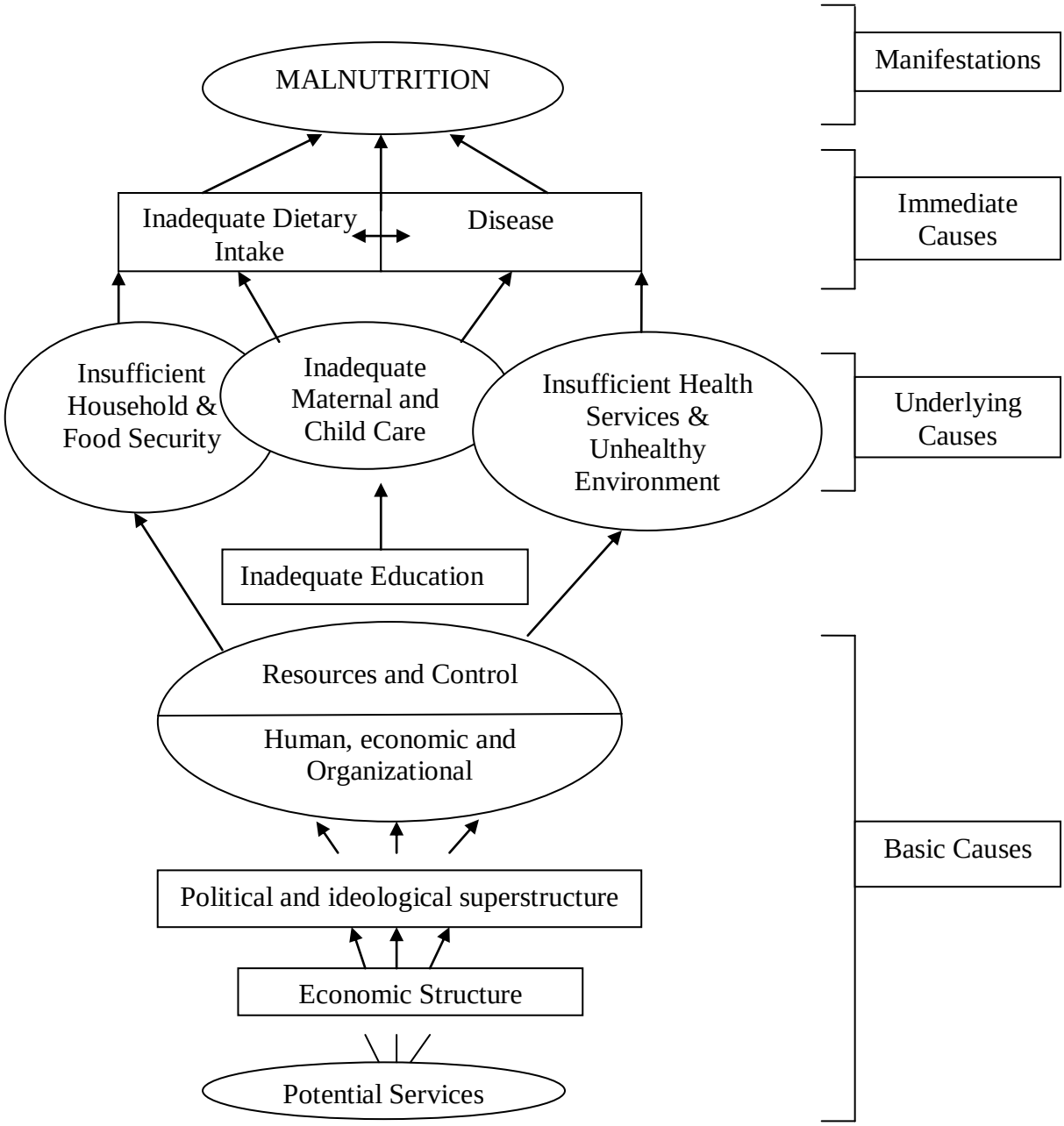
viii. Breast-feeding

The mother feeds milk from her breast to her infant/child is known as breast-feeding. Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development (WHO, website).

1.6. CONCEPTUAL FRAMEWORK

According to the diagram below, the basic causes of malnutrition is potential services, economic structure of the family, political and ideological superstructure, control over the resources by some limited people of the family or society. Inadequate education of the mothers or others family members of the family who take care of the children is also another cause of malnutrition. The education of the caretakers and mothers plays a very vital role in the upbringing of a child and is the basic requirement for better social, cultural and economic development of the child. Malnutrition amongst mothers and children is caused due to the improper maternal and child care, insufficient health services, unhealthy/unhygienic environment, and lack of nutritious foods. All the above factors and inadequate dietary intake leads to malnutrition along with other additional disease as well.

CAUSES OF MALNUTRITION



CHAPTER 2
LITERATURE REVIEW

Malnutrition is one of the most common problems among the children worldwide. Severe malnutrition in children under 5 years of age is the end result of chronic nutritional and frequently emotional deprivation by careers. There should be guidelines for the management of children with severe malnutrition and to promote the best available therapy so as to reduce the risk of death, shorten the span of time spent in hospital and facilitate full recovery (WHO, 1999).

The literature review below is presented in six major sections;
i) Malnutrition in the global context, ii) Malnutrition in Nepalese context, iii) Food and nutrition, iv) Feeding practices and v) Socioeconomic and cultural factors and their effects on nutrition vi) Nutritional knowledge and vii) Concluding logic.

2.1. MALNUTRITION IN THE GLOBAL CONTEXT

There were 923 million malnourished people in the world in 2007, an increase of 80 million since 1990, despite the fact that the world already produces enough food to feed everyone and could feed the double – 12 billion people (FAO, 2008).

Table: 1 Share of malnourished people in the world

Year	Malnourished people in the world (millions)	Share of malnourished people in the developing world
1990	842	20%
1995	832	-
2005	848	16%
2007	923	17%

On the average, a person dies every second as a direct or indirect result of malnutrition – 4000 every hour – 100 000 each day – 36 million each year – 58 % of all deaths (Commission on Human Rights, 2004). On the average, a child dies every 5 seconds as a direct or indirect result of malnutrition – 700 every hour – 16 000 each day – 6 million each year – 60% of all child deaths (FAO, *2008)*.

Malnutrition rates in Iraq had risen from 19% before the US-led invasion to a national average of 28% four years later. According to the Global Hunger Index, South Asia has the highest child malnutrition rate of world's regions (FAO, 2008). India contributes to about 5.6 million child deaths every year, more than half the world's total. The 2006 report mentioned that "the low status of women in South Asian countries and their lack of nutritional knowledge are important determinants of high prevalence of underweight children in the region" and was concerned that South Asia has "inadequate feeding and caring practices for young children"(FAO, 2010). Half of children in India are underweight, (CBS, 2007) one of the highest rates in the world and nearly double the rate of Sub-Saharan Africa (World Bank, 2010).

Childhood malnutrition is generally thought of as being limited to developing countries, but although most malnutrition occurs there, it is also an ongoing presence in developed nations. For example, in the United States of America, one out of every six children is at risk of hunger. A study, based on 2007 data from the U.S. Census Bureau and the Agriculture Department, shows that an estimated 3.5 million children under the age of five are at risk of hunger in the United States. In developed countries, this persistent hunger problem is not due to lack of food or food programs, but is largely due to an underutilization of existing programs designed to address the issue, such as food stamps or school meals. Many citizens of rich countries such as the United States of America attach stigmas to food programs or otherwise discourage their use. In the USA, only 60% of those eligible for the food stamp program actually receive benefits. The U.S. Department of Agriculture reported that in 2003, only 1 out of 200 U.S. households with children became so severely food insecure that any of the children went hungry even once during the year. A substantially larger proportion of these same households (3.8 percent) had adult members who were hungry at least one day during the year because of their households' inability to afford enough food.

2.2. MALNUTRITION IN NEPALESE CONTEXT

More than 50,000 children die in Nepal each year, with malnutrition as the underlying cause for more than 60 per cent of these deaths (UNICEF, 2010). Malnutrition is an ailment afflicting many Nepali children in the country, and even causing death. However, it has for long been an ignored issue and only in the recent years has the government and non-government sector been giving it more focus. According to the most recent survey examining nutritional status, the Nepal Demographic and Health Survey (NDHS) 2006, found that 49 percent of children below 5 years of age are affected by stunting, a sign of chronic malnutrition. The survey also showed that 39 percent of children are underweight and 13 percent children below five years are wasted, an indicator of acute malnutrition.

In developing countries like Nepal, nutrition is both cause and effect of fluctuation of health status of children. Having direct and indirect influence, nutrition plays a vital role to the human beings. The factors related to nutrition are social, economical, emotional, hereditarily and environmental, which are associated with children and their health. More than 84 per cent of the total population of Nepal lives in the rural areas. The shortage of food, and facilities of education and health facilities are more visible in the rural than the urban areas of Nepal. According to the preliminary Nepal Demographic Health Survey (NDHS) released in August, 29 percent of children under five are malnourished, and the problem is chronic in remote parts of the Mid-Western Region. The most recent regional figures (in the NDHS 2006 report) show more than half of the children are chronically malnourished.

Since many women in Nepal face the difficulty of not being able to provide sufficient care to their children due to factors such as heavy workload, lack of control over resources, traditional practices and poverty; the children in their second year suffer from malnutrition in Nepal. In Nepal, there are 50% of the children of under 5 years are suffering from various types of malnutrition. There are various factors which lead to malnutrition such as feeding practice, lack of nutrients in food, lack of education and nutritional knowledge, environmental sanitation and diseases (Prasai, 2004).

According to the Demographic and Health Survey, 2006, 39 percent of the country's under-fives are underweight and 49 percent have stunted growth. It is one of the highest in the world. In some districts of mid and Far-Western Development Regions, stunted growth rates are as high as 76 per cent and the prevalence of underweight children id 63 percent (Department of Health, 2006).

The Nepal Demographic and Health Survey (NDHS 2006), indicates that wasting is pronounced in the Central Terai (21%) and the Far Western Terai (20%). A comparison between the data of NDHS 2001 and 2006 further indicates that there has been marked decline in the level of stunting over the last five years, a modest decline in the level of children underweight, but a very small increase in the level of wasting over the same period. But all these results indicate that achieving the Millennium Development Goal of a 50 percent reduction in the prevalence of underweight children under five years of age by the year 2015 continues to be a challenge.

2.3. FOOD AND NUTRITION

Life cannot be sustained without adequate nourishment. Man needs adequate food for growth and development to lead an active healthy life. Better nutrition is the primary and essential step to prevent the malnutrition and other diseases.

During the weaning period the young child's diet changes from mother's milk to the regular family meals. Weaning is a dangerous time for infants and young children. Weaning usually starts from 5-6 months because breast-milk alone will not be sufficient enough to satisfy the nutritional requirements of the rapidly growing child. According to the NRH, malnutrition is more common during this transitional period than in the first 4-6 months, largely because families may not be aware of the special needs of the child or they may be poor. In this period the risk of malnutrition increases because the baby may not get enough nutrients from the foods provided to them or because they aren't given enough food or the food given may be of low quality.

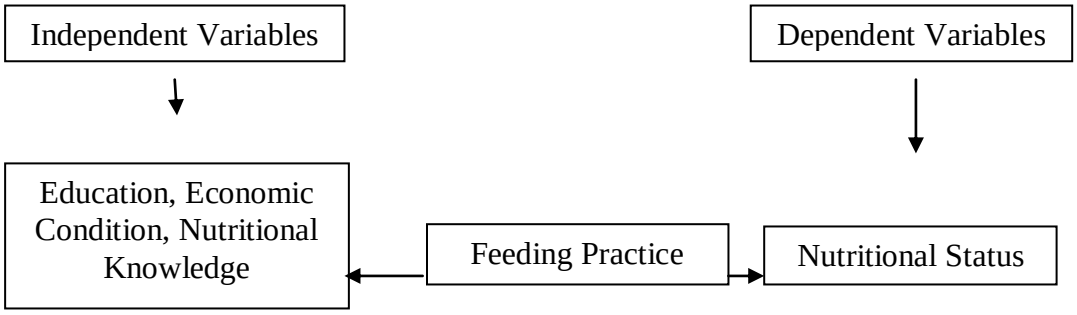
Early British social anthropological studies of the economics and social organization of non-industrialized societies subsisting mainly on local resources noted how the search for, preparation, and consumption of food provided the primary focus rather than an interval in the day's activities, and how in such contexts, symbolic and emotional values of foods were often used ritually to mark social status, intervals in time, and culturally important environmental resources. Subsequent ethnographies emphasized the centrality of the social cooperation in the food quest and food sharing to the structure and change of human social organization and culture. The influences of diet (feeding habits) and nutrition on "culture" and "personality" are currently construed within a more specialized literature on eating disorders or a more general framework on the systemic interrelationships between nutrient intake and social-psychological functioning *(Levine, 2002).*

There are other foods that by virtue cultural symbolic properties are considered to be dangerous, to produce harm, and therefore avoided. Ethnographers have noted how new foods are classified as "good" or "bad" for adults, children, women, or some combination of social categories on the basis of their perceived physiological effect-whether they are easily digested or make people sick (64). More generally, foods in many cultures are nominally considered to be "strengthening" or dangerous as a result of their origins, handling, processing, and ultimately contexts of ingestion (157). Within these cognitive categories, especially where diets are carefully regulated and restricted, individuals of species may be situational classified as "clean" (harmless) or tabooed (unhealthy) on the basis of circumstantial evidence (Messer, 1984).

Malnutrition is more common during the transitional period (i.e. the weaning period) than in the first four to six months of life. Infancy needs more nutrients for growth, development, good health and prevention of diseases. During infancy the rapid growth and development means high nutritional needs.

2.4. FEEDING PRACTICES RELATED WITH CHILD AND ITS IMPACT ON CHILD'S HEALTH

FACTORS AFFECTING FEEDING PRACTICE



Some of the factors, especially the socio-economic ones are directly or indirectly involved in affecting the feeding practice of children. Those women who are educated ones have better knowledge on what to feed, how to feed and how often to feed their children than those who are uneducated.

According to the WHO, "Breast-feeding is the best feeding", it is the essential food for infants. It will act in ensuring the adequate growth and development of the newborn child. Breast-feeding should be initiated immediately after childbirth. The first milk should be given to the infant rather than discarded as it provides natural immunity. Infant should be given only breast milk for the first six months of their lives. Breast milk has all the nutrients that babies need to stay healthy and for growth and development (Shrestha, 2004).

Research and policy on breastfeeding is often separated from research and policy on complementary feeding, as if breastfeeding advocates who integrate their work with complementary feeding dilute the message of the importance of exclusive breastfeeding. From the perspective of mothers and households, the two issues must be considered together. The World Health Organization's (WHO, 2003) new global strategy to improve child feeding integrates policies on breastfeeding with recommendations for appropriate complementary

feeding, and it acknowledges the problem of aggressive marketing of processed complementary foods as well as breast milk substitutes. Around six months of age, infants are ready to begin the process of ingesting foods other than breast milk. In some parts of the world, this process starts long before six months; in other parts of the world, much later. The transition is culturally significant, often stressful, and sometimes accompanied by a growth decline between 6 and 18 months of age. Weaning refers to both the introduction of food products other than breast milk and the cessation of breastfeeding. Anthropologists have generally chosen to focus on the weaning interval or the weaning process, stressing the multiple transitions involved. The weaning dilemma refers to these difficult, complex tradeoffs (Esterik, 2002).

Breast feeding and its importance:

Breast milk is not only the best but it is milk is natural food for the newborn in mammals and the process by which it is secreted by the mammary gland is known as lactation. Breast milk is considered to be complete food for infant which contains more than 130 type's factors.

Breast milk is the best food for the healthy growth and development of infants. Infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. After six months, they should be fed adequate and safe complementary foods while continuing breastfeeding for up to two years or beyond. Complementary foods should be rich in nutrients and given in adequate amounts. At six months, caregivers should introduce foods in small amounts and gradually increase the quantity as the child gets older. Young children should receive a variety of foods including meat, poultry, fish or eggs as often as possible. Infants can eat pureed, mashed and semi-solid foods beginning at 6 months, from 8 months, most infants can eat 'finger' foods, and from 12 months, most children can eat the same types of foods as consumed by the rest of the family. The consistency of foods should be appropriate for the child's age. Complementary foods should be given 2–3 times a day between 6–8 months, increasing to 3–4 times a day between 9–11 months. Between 12–23 months of age, 3–4 meals should be given. Also, depending on the child's appetite, 1–2 nutritious snacks can be offered between meals. In addition to providing an adequate variety, amount and frequency of foods, it is important that caregivers practice responsive feeding. That is, they should feed infants directly and assist older children when they feed themselves; feed slowly and patiently and encourage

children to eat, but not force them; and when children refuse to eat, experiment with different combinations of foods. Feeding times are periods of learning and love - they are a time for caregivers to talk to the child, making eye to eye contact (WHO, 2000).

Alternative feeding

Though no milk can be a real substitute for mother's milk, sometimes it is needed to give alternative feeding in case when mother is suffering from serious illness, another pregnancy during lactation, child is too weak or hearlip or cleft palate, insufficient breast milk, mother is not available to feed the child, the mother is steroids, radioactive drugs.

WHO recommends only two thirds of children less than six month of age is exclusively breast-fed. Breast-feeding also protects the baby against infection. Infant feeding practices also influence the future nutritional and health status of child. Ignorance among parents may cause a lot of disease and death among children.

UNICEF (1998) had highlighted that every baby was exclusively breast-fed from birth; an estimated 1.5 million lives would be saved each year, because breast milk is the perfect food for baby's first six months of life.

Introducing infant foods involves choices made in the context of environmental constraints, reproductive demands on women, and levels of infant and child mortality. Gray's research with the pastoral Turkana of Kenya explores the adaptiveness of early supplementation with solids in harsh ecological conditions, where there are heavy labor demands on mothers who may also be in poor health and where cow's milk is available. There is a culturally prescribed order for introducing foods to infants beginning with the forced feeding of camel butterfat at a few weeks of age, a practice the author identifies as adaptive because it enhances infant fat storage. Mothers wean their infants with more confidence after the weanling had accepted the taste of blood cooked with milk or porridge. Gray argues, "Exclusive breastfeeding in the first 4-6 months confers no health advantage to infants other than immunological effects, which are passed on to the infant regardless of early introduction of non-breast-milk foods", a conclusion that many might challenge (Dettwyler & Fishman 1992).

Traditionally in Nepal, a baby girl at the age of five months and a baby boy at the age of six months are introduced with solid foods, in "rice feeding ceremony." Nepali children are lucky enough to receive the breast milk for first few months of life.

Poor feeding practices and infection or a combination of two are the major factors of malnutrition. Poor feeding practices such as inadequate breast-feeding, offering the wrong foods and giving insufficient qualities contribute to malnutrition (WHO, 2000). Complementary feeding must be introduced at the right time and with proper foods. A mother should begin introducing other foods after the child reaches six months as because her milk cannot supply all of the necessary nutrients for the growth and development of the child.

2.5. SOCIO-ECONOMIC AND CULTURAL FACTORS AND THEIR EFFECT ON CHILD NUTRITION

Socio-economic status influences nutritional status and the variety of food available for children aged 5 years or younger. The socioeconomic status of families, the relationship of the caregiver to the child, the quality of available foods affect the eating behaviors of the children in developing countries. Furthermore, the effects of poor nutrition over time result in declining nutritional status as the child ages. This decline in nutritional status is also seen in developed countries, although for different reasons.

The demands of work can be so compelling as to constrict the effects of cultural differences, so that communities with comparable labor requirements follow similar patterns in feeding infants regardless of their cultural or ethnic affiliation. Although women in many societies are burdened with heavy work and child care responsibilities, our understanding of how the two are accommodated and how systems of labor management vary cross-culturally with systems of infant and child care remain fragmented. Such information, moreover, could offer a fuller perspective on the widespread transition to bottle feeding in modern urban societies in recent decades.

Low socio-economic status, poor education, traditional social values and other demographic factors affect the nutritional status of both child and mother. The other factor affecting the nutritional status of children rests in the education level of the mother. Half the children in Nepal under the age of 5 are malnourished; poor nutrition is one of the leading causes of death. Many of those who survive severe malnutrition suffer permanent physical and mental retardation that limits their potential forever. Poverty is not the only, or even the most prominent cause of malnutrition—ignorance of proper nutrition is.

In many rural third-world communities, women contribute substantial time and energy to subsistence farming, even while they are childbearing. Concern is expressed for the health of mothers and their children, especially poorer women who cannot afford a better diet or to interrupt their productive work, and who also give birth to many children and lactate for prolonged periods. Combining work with childcare is conditional upon a particular combination of ecological and socio- demographic characteristics, such as the seasonal demand for labor, the geographical dispersion of family members in nuclear families, long birth intervals, and an egalitarian and flexible distribution of work. Any distortions of these conditions, such as population pressure creating a shortage of land rather than labor, introduction of cash crops, change in crop rotation to intensify the production of paddy rice, resort to chemical fertilizers at the expense of animal husbandry, control of mortality with a reduction in birth intervals, school attendance of children who could otherwise help the mother, as well as the likely entrance of Tamang women in a market economy (such as carpet-weaving in factories) where the home and workplace are demarcated, and the increasing monetarization of the village economy which undermines many egalitarian and reciprocal labor arrangements, would alter the balance in these conditions. Strategic decisions to make the best use of resources will continue to be made, but constraints and opportunities will change (Panter-Brick 1989).

According to Shakya (2002), “the diet and nutritional education for solving the malnutrition problem in Nepal should focus on how to be mindful about the local food varieties and know about their nutritional values.”

Baidya (1983) found that among 15 health problems, malnutrition problem had come as vague problem which has come seventh in ranking. Thus, people have to be given more attention on nutrition education, nutrition program to improve their living standard.

Cultural and traditional belief such as fruits, leafy vegetables and pulses are restricted to pregnant and lactating women thinking its association with health problems contributes to nutritional deficiencies among them. Malnutrition among these women means malnutrition among their children. Mothers usually are unaware of the value of high protein and energy dense foods and of the measures necessary to prevent contaminated food and water (Chaulagain, 2006).

Since the early times, there is a sort of so-called belief that certain foods can be consumed in certain culture. But, the classification doesn't provide any sense to life. Brahmin classification of goat meat pure and buffalo meat and pork impure doesn’t have any scientific logic.

Like all culturally defined material substances used in the creation and maintenance of social relationships, food serves both to solidify group membership and to set groups apart. The works noted here deal with how food functions in social allocation, in terms of ethnicity, race, nationality, class, and (less precisely) individuality and gender. Gender does not differ from these other devices of social allocation: its relationship to food and eating is at least as real as food's relationship to the construction of nationhood, ethnicity, and race. Complicating these other distinctions is the part played by class or social position (Mintz and Bois 2002).

The demands of work can be so compelling as to constrict the effects of cultural differences, so that communities with comparable labor requirements follow similar patterns in feeding infants regardless of their cultural or ethnic affiliation. Although women in many societies are burdened with heavy work and child care responsibilities, our understanding of how the two are accommodated and how systems of labor management vary cross-culturally with systems of infant and child care remain fragmented. Such information, moreover, could offer a fuller perspective on the widespread transition to bottle feeding in modern urban societies in recent decades.

Greater household income and assets directly raise the ability to purchase sufficient quantities of nutritious foods, clean water, clothing, and adequately-ventilated housing, fuel for proper cooking, safe storage of food, personal hygiene items, and health services. At the individual level, greater education for mothers contributes to new skills, beliefs, and choices about sound health and nutritional practices that directly influence the proximate determinants of child health. For instance, knowledge obtained during a mother's education can affect choices about antenatal care and about children's nutrition, hygiene, and health care. To the extent that more-educated mothers make healthier choices for themselves during pregnancy, education will have a direct effect on the health of the child at birth. Improved socioeconomic status also involves changes in norms and attitudes that influence the economic decisions and nutrition-related behaviors of mothers and fathers (Miller and Rodgers, 2000).

Demographers and sociologists have defined women's autonomy in several ways, example Dyson (1983) emphasizes decision making power regarding a woman's life and those close to her, whereas Dixon (1978) and Jejeebhoy (2000) focus on control over resources like food, income knowledge and prestige within the family and society at large. The women's autonomy can be conceptualized into dimensions such as women's decision making power and control over resources within the family, household decision making power, child related decision, financial control, decisions regarding mobility are relevant where women tend to have limited access to resources such as knowledge, information and finances and are restrained in their movements in and out of the house; this effect a lot in child's health. Women's autonomy may be one of the important social variables responsible for influencing child's nutritional status. Mothers higher decision making power surrounding child feeding is a significant predictor of improved scores. This could impact her infant's birth not morbidity and her and her child's nutritional status *(Shrif et al., 2001).*

Women's schooling is associated with much of the world's improvement in child survival and maternal and child health since 1960. Evidence for these associations is widely interpreted as representing a causal influence of formal education on health. The relationships of variations in female school attendance at the levels of individuals, populations, and historical periods to reproductive health outcomes raise new questions for comparative educational research

concerning the process involved. This article reports the results of a survey designed to test a theoretical model positing that literacy skills acquired by girls in school are retained into their adult years, facilitating their exposure to public health messages in the media, which in turn influence the health knowledge affecting their health behavior as mothers. (*Rowe et al. 2005)*

Nutrition problems are still widespread. In fact many studies have shown there are strong links between nutritional practices and education. Poor childhood nutrition has lifelong effects.

Thapa (1989) found out that among 400 students of 10 public and 10 private primary schools of Kathmandu town, 20.5 and 50 percentage of children were wasted and stunted at public primary school, 15 percent were wasted and 35 percent were stunted at the private primary school. On the basis of parent's education, he found that 68.71 percent were stunted children in under educated families. Thus, he concluded that parent's education in the family is directly associated with nutritional status of the children.

CHAPTER 3
RESEARCH METHODOLOGY

The main components of the methodology in research design had been devised as follows: location and selection of the survey area, sample size, sampling procedure, and tools used for data collection and data processing. To illustrate the research work all the information has been illustrated in a descriptive form. In addition case study has been presented to substantiate the facts presented.

3.1. INTRODUCTION OF THE STUDY AREA

The main study area was **The Nutritional Rehabilitation Home, Kathmandu**. In 1998, Nepalese Youth Foundation (NYF) opened the doors of the first Nutritional Rehabilitation Home (NRH) in Kathmandu to nurse severely malnourished Nepali children back to health.

Friend of Needy Children (FNC) has been operating Nutritional Rehabilitation Home (NRH) Project in Kathmandu with close collaboration with Nepalese Youth Foundation (NYF) since February 1998. This project has residential facility for the malnourished children and their care takers during the treatment course.

The Nepalese Youth Foundation (NYF)'s Nutritional Rehabilitation Homes are small hospitals dedicated to restoring severely malnourished children to good health while educating their parents in nutrition and child care. The parents then take better care of all of their children and share what they learned with their family and neighbors. The nutritional knowledge spreads throughout villages, multiplying the impact of the program. After being admitted, the child and caretaker live together at the NRH during the course of treatment. It usually takes only 5 to 6 weeks for a child's health to be restored. Nutritional assessments are taken daily to monitor their progress. The caretakers are instructed on how to prepare safe, nutritious meals using foods that are affordable and readily available in rural Nepal. They also attend educational sessions held by

the NRH. They include cooking, gardening, and health awareness lessons in order to develop transferable skills to be put to use after returning home. The knowledge gained can be passed on to other caretakers in their communities. After the caretaker and child are discharged, field workers follow up in the villages 3 times within a year. They check on the child's health and to ensure that the caretaker is not only practicing what she has learned but is also educating others in the community about nutrition and other good child care practices.

The NRH is walking distance from Kanti Children's Hospital, which works closely with NRH in referring children and mothers and helping with their medical problems. Over 24 mother/child pairs at a time can now stay at the NRH, and serves about 225 pairs per year. The main objective of the NRH, Kathmandu is to rehabilitate the malnourished children, to provide knowledge about malnutrition and its impacts to the parents and guardians, and build the capacity of parents/guardians to provide balanced diet to the children. Many experienced people are required to provide such great care for the admitted. Hence, NRH Kathmandu consists of many staff members including office staff, doctors, nurses, cooks, volunteers, a dietician and watchman.
NRH of Kathmandu District which is located at Baluwatar ward no. 3 is chosen as the study area because of the higher rates of malnourished children admitted from different parts of the country but mainly they come from Makwanpur and Dhading districts. Since the zonal hospitals are not well-equipped, therefore the zonal hospitals refer the patients to Kathmandu for treatment. The main channels for bringing the malnourished children to the NRH are through hospitals, outreach camps, parent's information about the NRH who had stayed at the NRH and NRH field staff.

A total of 9 staff is working in the NRH, out of which 4 are nurses. There are two doctors and a dietician who work in the NRH. Doctor visit to the NRH thrice a week, for necessary medical treatment and for further investigation of the child (such as referral to the hospitals) Doctors work in close coordination with the dietician in order to enrich the intake of the food of a child (if the child has not gained weight). The Nutritional Rehabilitation Home, Kathmandu has served over 2500 children till May 2011.

The volunteers working in the NRH who are come through various organizations and get themselves involved in various activities that goes on in the NRH such as involving children in

recreational activities (such as coloring, painting), observe the doctoral activities, help in dietician activities, monitor the diet programs, organize trainings/orientations for the mothers residing in the NRH. The nursing staff and the manager counsel the guardians, especially mothers to feed the appropriate diet to recover the weight the child has lost.

Child and mother live together at the NRH during the course of treatment, usually about five to six weeks to the maximum and 15 days minimum for education purpose of the mother. The NRH rehabilitates the children; it also educates the mothers providing the knowledge on how to prepare nutritious meals using foods readily available. The mothers are also instructed in how to pass on their knowledge to other mothers after they return to their villages. There are children coming from various ethnic backgrounds (Brahmin, Chhetri, Gurungs, Magar, and Occupational Castes) in the NRH.

After the mother and child are discharged, field workers follow up in the villages to check on the child's health and to ensure that the mother is not only practicing what she has learned but is also educating other women in the community about nutrition and other good child care practices. The NRH organizes various outreach camps in order to provide health assessment to the children of various areas, encourage the caretakers to visit NRH if their children need some service from the organization, and provide basic health and nutrition education to the caretakers. In coordination with the Department of Health Services, Ministry of Health in coordination with the NRH celebrates Nutrition Week every last week of December. The main objective of celebrating this week is health check up of children below 10 years, raising awareness the community about the service and facilities of the NRH provide basic health and nutrition.

3.2. NATURE AND SOURCES OF DATA

The study was based on primary data that was collected from the NRH during March and June 2011. The data consists of both qualitative and quantitative type. This study was of descriptive type where the following methodology was carried out using both primary and secondary data.
In this study, primary data was collected from the NRH through structured questionnaire. The interview was administered to the mothers of the children in NRH. In the process of collecting

information on the malnourished children residing in the NRH, some questions were administered to the nurses working in the NRH. In addition, some few case studies were collected to understand the local culture and the food habits of people in general. The feeding practice of children in the NRH was also be observed directly while visiting the field site

The data were collected by the researcher through written documents, libraries, and various organization reports on the context of nutritional issue of children in Nepal.

3.3. SAMPLE SIZE AND DATA COLLECTION

A sample is a collection of items or elements from a particular or universe. Hence, a sample is only a portion or subset of the universe or population. It comprises some observations selected from the population (Wolf and Pant 2005). Simple Random Sampling (all items of the population have equal probability of being selected) was chosen for the research.

A total 20 children were taken as a sample size for conducting the anthropometric measurement (weight for height) for the research. Along with the nurses and the staff of the NRH, the mothers of these children were interviewed to get the relevant information. During the interview, information was collected from each respondent. The researcher gave a brief explanation about the objectives of the study to each respondent. The researcher assured the respondents that their response would be strictly confidential and would be used only for the academic purpose

A sample size of mothers (20), nurses (two) was taken for the detailed interviews.

Table 2: Distribution of children admitted in the NRH according to their age group

S.N.	Age Group	No. of Children	Percent
1.	0 to 6 months	0	0
2.	6 to 24 months	8	40
3.	24 months to 5 years	8	40
4.	5 years to 10 years	4	20
5.	10 years and above	0	0
Total		**20**	**100**

DATA COLLECTION TECHNIQUES

The following techniques were adopted for the data collection:

Questionnaire:

A questionnaire is a formal list of questions designed to gather responses from respondents on a given topic. Thus, a questionnaire is an efficient data-collecting mechanism when the researcher knows exactly what is required and how to measure the variables of interest (Wolf and Pant, 2005).

In this study, a structured questionnaire was constructed before conducting the field survey for the quantitative information. The questionnaire was designed in such a way that it could provide sufficient information related to acquire the objectives of the study.

The questionnaire was divided under different headings as follows:

- Detail of individual/respondents
- Nutritional knowledge and awareness among mothers on malnutrition

Case Study:

The case study method is a technique by which individual factor whether it is an institution or just an episode in the life of an individual or a group is analyzed in its relationship to any other in the group. (C.R. Kothari, 1990)

Pauline V. Young describes case study as "a comprehensive study of a social unit be that unit a person, a group, a social institution, a district or a community." (C.R. Kothari, 1990)

To meet the objective three, **three case studies** were collected from the mothers, doctors and nurses. Such case studies helped to understand the local food practices with particular reference to culture.

Observation:

Observation is the process of recognizing and noting people, objects, and occurrences rather than asking for information (Wolf and Pant, 2005)

All the data has been supplemented through field **observation**. The observation specially was made to gain information on the feeding practice of the children and social implication of malnourishment.

3.4. RELIABILITY AND VALIDITY

The researcher herself carried out the entire research. Many part of this study derives from the primary data which was collected through fieldwork. For further information with a broader view on the topic, secondary sources were also used for the fulfillment of the study.

3.5. LIMITATIONS OF THE STUDY

- Responses of the caretakers/mothers regarding their socio-economic condition of their families may or may not be proxy and generalized for other areas.
- Due to limited number of children in the NRH, the sample size was small.

CHAPTER 4
SOCIAL AND CULTURAL IMPACTS ON MALNUTRITION

In the present study, to obtain information relating to nutritional status of children residing in a rehabilitation home, Nutritional Rehabilitation Home (NRH), Baluwatar, a set of questionnaire was administered to the mothers/guardians residing along with their children in the NRH. From the collected information, educational attainment of parents, sources of income, ethnicity and number of siblings were examined and analyzed by applying weight for height criteria under WHO guideline. The collected information regarding the nutritional knowledge and awareness of mothers/guardians has also been described. The information on the feeding practice of the children residing in the NRH was taken by interviewing on duty staff nurse and the details have been described in a separate sub-heading. For gathering and analyzing the information related to case studies the mothers, manager and nurses were interviewed which helped to understand the local food practices with particular reference to culture and the social and cultural factors leading to malnutrition. Collected information were treated methodically and findings obtained through the investigation are interpreted under different sub-headings like distribution of the children according to their sex, nutritional status of children according to their age Composition, nutritional status of each children according to weight for height criteria, ethnic background of the children admitted, educational attainment of mothers/guardians, distribution of children by income source of their family, knowledge and awareness of respondents on malnutrition, feeding practice in the NRH and case studies.

4.1. DISTRIBUTION OF CHILDREN ACCORDING TO THEIR SEX

In our Nepalese society there is always a lot of preference given to the male child in each and every aspect of life whether that is socially or economically. He always gets the first preference as compared to the girl child of the same society. Along with this existing trend, he also gets the first preference whether it is in curing of any disease or taking him to the hospitals. If a female

child is suffering from any disease is taken to the traditional healers whereas if it's the case of a male child he is taken directly to the hospitals. But, now as people are getting educated they are giving the female child as the same preference and rights as they give to the male child.

The following table gives us the clear picture of admission of the children according to their Sex:

Table 3: Distribution of Children According to their Sex

S.N.	Sex	Number of Children	Percent
1.	Male	9	45
2.	Female	11	55
Total		**20**	**100**

Source: Field Survey

The above table clearly shows that there is no such difference in the ratio of admission of a male and female child. This clearly gives us a view that the so called gender disparity between a male and a female child is reducing day by day. The cause for the increase in the admission ratio may be due to the availability of free service provided by the NRH as most parents give birth to many children whom they cannot provide proper care for and also cannot fulfill even the basic requirements due to problems such as poverty and lack of knowledge on nutrition. Observing the fact that keeping their child in the NRH, their child can get proper care with proper feeding practice, the parents bring their children to the NRH. The other reason for the child being malnourished can also be related to the early age of marriage of the mother. When a mother is married at an early age she doesn't have a proper idea about rearing and caring of a child as she won't be mature enough physically and mentally to take care of the child.

4.2. NUTRITIONAL STATUS OF CHILDREN ACCORDING TO THEIR AGE COMPOSITION

All the 20 children of different ages obtained through survey were distributed in 5 categories to study their nutritional status. Among the distribution made 8 children belong to 6 to 24 months age group and 8 children belong to 24 to 5 year age groups showing the highest percentage (40 percent) and there are no children found in 0 to 6 months and 10 year and above age group. The following table illustrates the nutritional status of children according to their age composition:

Table 4: Nutritional Status of Children According to their Age Composition

S.N.	Age Group	Nutritional Status						Total
		Mild	%	Moderate	%	Severe	%	
1.	6 to 24 mnth	0	0	5	71.42	2	28.57	7
2.	24 mnth to 5 year	2	25	5	62.50	1	12.50	8
3.	5 year to 10 year	2	40	3	60	0	0	5
	Total	4	20	13	65	3	15	20

****The percentage of the data taken have come out to be higher due to smaller number of sample size. This cannot be generalized.*

Through analyzing the table, the children found in poor nutritional status enlighten by 6 to 24 month age group where 71.42 percent fall under second degree of protein energy malnutrition and 28.57 percent fall under third degree of protein energy malnutrition. Comparing among these age groups, 5 to 10 year age groups reflects the better nutritional status of the children which has 40 percent in the first and 60 percent in the second degree of protein energy malnutrition.

The children of age group between 0 to 6 months of age normally don't come to the NRH as because the children falling under this age group don't suffer from malnutrition. The reason for this is because until 6 months of age the baby is fed only with breast milk and therefore there is very least possibility of the child to be malnourished. When the child gets older s/he needs supplementary food along with the breast-feeding due to which s/he gets malnourished. There

are various reasons for which the mothers are unable to provide supplementary food to the child such which leads to malnutrition of a child is household work pressure due to which she cannot rear and care the child properly, which is related to untimely feeding practice, improper diet, due to having large number of children which again puts some restrictions on providing sufficient meal/diet necessary to each and every children.

Mostly the children falling under the age group of 8-24 months are seen to be malnourished due to various factors such as improper diet and lack of care because of mother getting engaged in household work, early (3/4 months later) pregnancy after a child is born because of which she won't be able to take proper care of the first child, use of only those food that are easily available at home or junk foods given to the child which cannot provide sufficient amount of nutrition to the child.

4.3. NUTRITIONAL STATUS OF EACH CHILD ACCORDING TO WEIGHT FOR HEIGHT CATEGORY

The number of children recorded in the NRH was categorized into 4 groups for the nutritional status according to the weight for height criteria as per WHO Guideline. The following table gives a clear picture of the nutritional status of each child according to weight for height criteria of each child:

Table 5: Nutritional Status of each Child According to the Weight for Height Criteria

S.N. (Child)	Weight (kg)	Height (cm)	SD Score
Child 1.	10.9	90	<-1SD
Child 2.	4.3	62	<-4SD
Child 3.	14	107	<-2SD
Child 4.	6.5	68	<-2SD
Child 5.	5.8	65	<-2SD

Child 6.	11	92	<-2SD
Child 7.	6.7	71	<-2SD
Child 8.	6.1	70	<-3SD
Child 9.	11.5	90	<-1SD
Child 10.	6.9	72	<-2SD
Child 11.	10	85	<-1SD
Child 12.	13.6	105	<-2SD
Child 13.	12.8	99	<-2SD
Child 14.	10.8	94	<-2SD
Child 15.	14.5	104	<-1SD
Child 16.	16.8	114	<-2SD
Child 17.	6.9	72	<-3SD
Child 18.	11.8	98	<-2SD
Child 19.	10.3	89	<-2SD
Child 20.	6.6	67	<-2SD

The Weight for Height reference table as per WHO Guideline is attached in the APPENDIX 3.

The nutritional status of the children admitted during the survey of the NRH Kathmandu indicates a higher percent of children (65 percent) falling within the <-2SD category, followed by children falling under the <-1SD category, <-3SD category and <-4SD category. The detail of which is shown in the table below.

Table 6: Nutritional Status of the Children

S.N.	SD Score	Number of Children	Percent
1.	<-1SD	4	20
2.	<-2SD	13	65
3.	<-3SD	2	10
4.	<-4SD	1	5
	Total	**20**	**100**

Source: Field Survey

The child suffering from <-1SD reflects that the child is in the initial period of malnutrition in which the child be cured easily through proper dietary intake and is also be termed as the mild degree of malnutrition. The child falling under <-2SD to 2SD stage reflects that the child is suffering from the moderate degree of malnutrition whereas the child falling under <-3SD to 4SD degree of malnutrition states that the child is severely malnourished and needs to be gone through a proper medical attention along with proper diet.

4.4. ETHNIC BACKGROUND OF THE CHILDREN ADMITTED

Ethnicity is the race of mankind which is determined by social cohesion of religious philosophy. To appraise the nutritional status of children from this point of view, various ethnic groups were observed in the NRH, Kathmandu through the present study in the table below:

Table 7: Caste of the Children Admitted in the NRH

S.N.	Ethnicity	Number of Children	Percent
1.	Brahmin	4	20
2.	Chhetri	9	45
3.	Newar	1	5
4.	Magar	2	10
5.	Occupational	3	15
6.	Chhepang	1	5
	Total	**20**	**100**

Because of the suggestions and request tht came from the NRH, Dalits were referred as Occupational Caste here.
Source: Field Survey

According the above table, Chhetri children are highly affected (45 percent) in this study. The Chettris are followed by the Brahmins who constitute of 20 percent of the total children. Other children like Magar, Occupational are few in numbers while Chhepang and Newar are in equal proportion.

Despite being considered the so called "upper caste" the Brahmin/Chhetri also constitutes to be malnourished. This raises the question why, when they are regarded as more educated and financially well-off. Does it mean that the disadvantaged communities are looking after their children better or that simply they have as yet not heard of the programme? Therefore, we can say that more detailed screening will provide in-depth information to addressing the preventive aspect and de-root the problem.

Table 8: Nutritional Status of the Children by Ethnicity

Applying Weight for Height Criteria

S.N.	Ethnicity	Nutritional Status						Total
		Mild	%	**Moderate**	%	**Severe**	%	
1.	Brahmin	-	-	3	75	1	25	4
2.	Chhetri	3	33.33	6	66.66	-	-	9
3.	Newar	1	100	-	-	-	-	1
4.	Magar	-	-	2	100	-	-	2
5.	Occupational	-	-	2	66.66	1	33.33	3
6.	Chepang	-	-	-	-	1	100	1
	Total	**4**		**12**		**4**		**20**

Source: Field Survey

Out of six ethnic groups, Chepang caste is found to be 100 percent malnourished. The children of Brahmin are 25 percent severely malnourished. 33.33 percent of the children of Occupational caste are found to be severely malnourished.

Moderate degree concerns with the following ethnic groups higher to lower percentage such as Magar (100 percent), Brahmin (75 percent), Occupational (66.66 percent) followed by Chhetri (66.66 percent). The rest ethnic group children of Newar and Chhepang didn't fall under moderately malnourished children.

4.5. EDUCATIONAL ATTAINMENT OF MOTHERS/GUARDIANS

The educational status of caretakers, generally mothers, plays a very vital role in the upbringing and well-being of a child. Education is a basic requirement which contributes to social, political and economic development. Malnourishment is mostly seen amongst children whose mothers/guardians are illiterate and amongst those children whose parents have minimal education. Malnutrition amongst the children is also caused due to lack of knowledge on nutrition and the value of nutritional food.

In this study, the respondent parents/guardians were categorized in four categories as illiterate, up to grade 5, up to grade 10, grade 12 and above. The details of the educational attainment of mothers/guardians are illustrated in the following table:

Table 9: Educational Status of Mothers/Guardians

S.N.	Level of Educational of Mothers/Guardian	Number	Percent
1.	Illiterate	7	35
2.	Up to Grade 5 (Primary level)	9	45
3.	Up to Grade 10 (secondary level)	3	15
4.	Grade 12 and above (higher level)	1	5
	Total	**20**	**100**

Source: Field Survey

From the above table it is very much clear that most of the parents/guardians are illiterate or have just minimal level of education. The parents whose educational status is of primary level (grade 5) (45 percent), their children are malnourished which is followed by the parents who are completely illiterate (35 percent).

Therefore, mothers/guardians learn more about food, nutrition, health hygiene, and sanitation during their stay at the NRH. To emphasis on hand washing, mothers and children are lined up and involve actively in the hand washing practice daily before getting the meals. To educate the

care takers about the importance of nutrition in daily life, food demonstrations and practical sessions have been carried out at NRH premises. All the caretakers participated actively in the educational session offered.

Case 1

A21 month old boy was referred from a private pediatric hospital - IFCH (International Friendship Children's Hospital) in a severe stage of PEM (Protein Energy Malnutrition). He got admitted in IFCH for few days and stabilized there. The causes of admission in the IFCH were vomiting, loose stool, skin infection, fever and lose of weight.

He belongs to a middle class family and his parents are well educated. Though being from a well educated family his family and parents were not able to provide him proper nutrients as they were unaware of it. He was the second child of his parents. Even having a good surrounding such as economically and socially, his health condition was deteriorating day by day and he had to visit Kathmandu for the treatment. The parents and the family members of the patient were educated but since they had no idea about malnutrition and its ill-effects their children was suffering from malnutrition.

The main occupation of the family was agriculture though his father was abroad for the livelihood. His mother Rima is responsible for looking after both of the children. He used to get 2 meals and 3 snacks a day which is enough for a little boy like him but the ingredients were not properly mixed while preparing the food.

Table 10: Nutritional Status of the Children by Educational Attainment of Mothers/Guardians Applying Weight for Height Criteria

S.N.	Level of Education of Mothers / Guardian	Nutritional Status						Total
		Mild	%	Moderate	%	Severe	%	
1.	Illiterate	2	28.57	2	28.57	3	42.85	7
2.	Up to Grade 5	2	25	6	75	-	-	8
3.	Up to Grade 10	-	-	4	100	-	-	4
4.	Grade 12 and above	-	-	1	100	-	-	1
	Total	**4**		**13**		**3**		**20**

Source: Field Survey

The above table shows that 42.85 percent of severely malnourished children of illiterate families suffered from severe degree of PEM. No children were found to be severely malnourished in the other categories relating to educational attainment of mothers/guardians.

There were seen 100 percent of children falling under the moderate degree of malnourishment in both categories of parents having educational level up to grade 10 and grade 12 and above. Whereas, there were 75 percent of the children who were moderately malnourished whose parent's level of education was up to grade 5. 28.57 percent of the children were moderately malnourished whose parents were illiterate.

28.57 percent of the children fall under mild degree of malnourishment whose parents are illiterate and 25 percent children whose parents have attained primary level of education (up to grade 5) are mildly malnourished.

4.6. INCOME SOURCES OF PARENTS

Nabarro (1978) discovered the direct relation between malnutrition and poverty showing more percentage of wasted children who were found in the families having less than one hector land (HMG/UNICEF, 1995).

The existence of such long-standing, traditional patterns of early supplementation to facilitate mother's work may lend a certain perspective on the use of bottle feeding by urban working women in less developed countries today. The difference is that bottle feeding seems likelier to replace, than to supplement, breast milk, and thus carries greater risks. What is striking in this case are the similarities in the ways women of different ethnic groups accommodate the demands of work and of feeding and caring for their infants and young children. The cultural and social systems of these communities hardly could be more diverse. Ethnic Tibetans, high caste Hindu Parbatiyas, and Buras have different religions and different systems of social stratification, marriage, and household organization. Yet such factors seem to have little impact on patterns of infant feeding. Instead existing variations appear to have their source in systems of labor management, the exigencies of local resource use, and relative prosperity, which influences how long a new mother, can be spared from full productive work. Since the heavy agricultural labor women perform is not compatible with full attention to child care, these women tend to compartmentalize the two. Other household members are called into service for child care, and there is relatively little concern about their ability to substitute for the mother. This is because child care is seen as comparatively non-demanding and as not requiring special skills. The major problem is that caretakers only can provide supplementary foods in the mother's absence, and for reasons other than the ones members of these societies identify, this can have negative consequences for children. Although unaware of the sources of the problem, people recognize that infants do best when mothers stay home and can breast feed on demand. (Levine 1988).

The economic status of the family affects in the upbringing of the children and their nutritional status. As long as the economic status of the family/parents is strong s/he will be able to feed their children with the nutritious food needed by the children. It is one of the vital factors

responsible for the better growth and upbringing of the children which can be reflected by the case below:

CASE 2
Three-year old boy is the youngest of five children in his family living in the Sindhupalchok district. His parents are farmers, but a shortage of fertile land for growing crops made it very difficult for the family to provide enough food to ensure he was receiving proper nourishment. His father often doubles as an agricultural laborer or porter, but even with this extra income there is barely enough money to cover the family's basic needs. He was fed irregularly at home as both parents were busy with the land and with the other four children. Generally, he received two meals and two snacks per day, but his diet was not well-balanced. Dawa was referred to NRH from Kathmandu Medical College after he was diagnosed with Kwashiorkor. For a month previous to his hospital admission, he suffered from severe swelling of his entire body. He was also found to have dermatitis of the lower limbs and severe anemia, requiring him to undergo a blood transfusion.

The following table clearly illustrates the distribution of children through the income source of parents:

Table 11: Distribution of Children by Income Source of their Parents

S.N.	Source of Income	Number of Children	Percent
2.	Wage + Agriculture	17	85
3.	Wage + Business	3	15
	Total	**20**	**100**

Source: Field Survey

The children of wage plus agriculture dependent families were found to be more in number while doing the survey. The children of wage plus agriculture dependent families were found to be having poor nutritional status as compared to the children from wage plus business dependent

families. Out of 17 children of wage plus agriculture dependent families 2, 11 and 4 numbers of children suffered from severe, moderate and mild degree of PEM respectively.

Wage plus business dependent family were found to have 3 children where 1 child was found to be severely malnourished and the other two were moderately malnourished.

Table 12: Nutritional Status of the Children on the Basis of Source of Income Applying Weight for Height Criteria

S.N.	Source of Income	Nutritional Status						Total
		Mild	%	Moderate	%	Severe	%	
1.	Wage + Agriculture	4	23.52	11	64.70	2	14.28	17
2.	Wage + Business	-	-	2	66.66	1	33.33	3
	Total	**4**		**13**		**3**		**20**

Wage plus business dependent families revealed the higher percentage of severe (33.33 percent) and moderately (66.66 percent) malnourished children. Agriculture as well as wage dependent families were found 14.28 percent severely, 64.70 percent moderately and 23.52 percent mildly malnourished children. The above table reflects the quite better nutritional status of the children in wage plus business dependent families in comparison to the other one.

4.7. KNOWLEDGE AND AWARENESS OF MOTHERS/GUARDIANS ON MALNUTRITION

The people who have less appropriate knowledge and practice on nutrition face many problems. Amongst the 20 respondents chosen as sample for the study 12 respondents, i.e. 60 percent of the total was unaware of the fact of what malnutrition is and what can be the consequences of malnutrition. They didn't know whether it was a nutritional deficiency or not and what were the leading factors of malnutrition and this can be caused due to eating disorder. They were least aware of the symptoms of malnourishment and had no idea about rearing and caring of a

malnourished child or how to maintain health and hygiene of a child, methods for preparing a balanced diet and the importance of breast-feeding. Mothers and guardians take malnutrition as just one kind of disease such as weakness. Besides this they have no knowledge on this issue.

The remaining 40 percent of the total respondent had a very less knowledge of what malnutrition is and about its prevention and cure. They had some unclear definitions of malnutrition but didn't know it that deeply. They were aware that malnutrition is caused due to food mismanagement. The respondents who were somewhat aware of malnutrition had some basic idea on personal cleanliness and maintaining of hygiene. They were aware to some extent of what malnutrition is and what can be the leading factors of malnutrition. They had some knowledge on it through various means/sources such as health post, hospitals, health personnel, NRH, Radio/TV, field supervisors from the NRH.

From the survey done, there were families where the mother and the child were fed according to gender of the child born. If it is a male child then the lactating mother is fed with nutritious food such as *jwano*, mutton curry, rice, legumes, lentils, etc. because of which there will be sufficient breast-milk for her child also and proper care of health and hygiene is also taken care of, of both mother and the child. Whereas if the mother gives birth to a female then she is not fed with nutritious food and is fed with running watery dal and rice because of which she won't be able to generate a nice amount of breast-milk to her child which leads to malnutrition of both the lactating mother and her baby. Her health and hygiene is also not taken care of and she is asked to stay in a sort of shed which is dark and is not hygienic at all for both which can lead to other serious disease as well.

The mothers/guardians weren't aware of the fact that if a child is undernourished or malnourished or is suffering from any other disease s/he should be taken to the hospitals rather than taking them to the traditional healers. Taking the child to the traditional healers might just worsen the situation of the child as s/he will not get proper treatment as required. 85 percent of the respondents were found to have a belief in traditional healers and also have taken their child to the traditional healers for treatment before taking them to the hospitals. Only if the traditional healers aren't successful in curing the child s/he was taken to the hospitals or nearby health post.

Mothers were seen to have a strong belief in traditional forms of treatment than the doctors. This is due to various reasons such as the strong social and cultural setup, the traditional belief that the traditional healers cures all the ills of the child, bad economic conditions of the family for taking their child to a better hospital for better treatment.

There are various social, cultural, economic factors leading to malnutrition. The causes of deficiency of malnutrition is due to improper care, bad economic conditions of the family, lack of breast-feeding, lack of balanced diet, improper mixing of ingredients, eating disorder, belief in traditional healing practice, prevalence of importance to a male child, patriarchal factors (no access of women to economic or social aspects of life) and parents' lack of knowledge about child care.

4.8. FEEDING PRACTICE OF CHILDREN AND EDUCATION AND DEMONSTRATION CLASSES FOR THE MOTHERS

The children brought in the NRH were malnourished due to various factors of which one of the major factors being the feeding practice. For a child being malnourished in relation to feeding practice there are several factors such as large number of siblings which lead to poor nutritional status of the child because of unavailability of sufficient amount of food, untimely feeding practice, due to tight working hours of mothers they feeding their child with junk foods such as biscuits, noodles, etc., immediate pregnancy of a mother after giving birth to her first child leads to malnourishment of a child because she won’t be able to take care of her first baby and feed him/her properly as required, bottle feeding seems likelier to replace, than to supplement, breast milk, and thus carries greater risks; since the heavy agricultural labor women perform is not compatible with full attention to child care, these women tend to compartmentalize the two. Other household members are called into service for child care, and there is relatively little concern about their ability to substitute for the mother.

CASE 3

A 26 month old girl from the Dhading District. She is the only child to mother, Shrejana (23), and father, Kedar (26). Her mother is in charge of maintaining the household while her father is a farmer. They are of the Brahmin class. The family eats two meals and a snack a day consisting of rice, vegetables and dal. She lacked a good appetite and rarely finished more than half a bowl. She was also suffering from chronic diarrhea when she was brought to the NRH. Her parents were worried about a continuous loss of weight. They took her to the local health post which diagnosed her as having PEM and in turn referred her to NRH for treatment. At the time of admission to NRH, she weighed only 6.4 kg. She was almost 3kg below the average recommended weight based on height as per the WHO guideline. Ashika was very thin and getting worse by the day due to diarrhea. The diarrhea was most likely caused by bacteria found in water which she may have contracted from poor sanitation practices. Her appearance was startling with much wrinkled loose skin and visible ribs and joints.

In accordance with the World Health Organization (WHO) guidelines, her status was identified as having a score of -3SD. This score is indicative of severe malnutrition. She was immediately treated for bacteria in her digestive tract (deworming). Further treatment involved supplementation of folic acid and B-vitamins. She was given F75 therapeutic milk for the initial management. She was given F100 when she entered into the rehabilitation phase with other food. Her food intake was closely monitored by nurses who ensured she ate at regular three hour intervals. Her mother Shrejana, accompanied her to NRH. During their stay at NRH the doctors, nurses, cooks and dietician educated her on proper nutrition and a balanced diet essential to her development. Shrejana was also taught about sanitization and personal hygiene. There were formal and informal classes provided to Shrejana

In the NRH, in order to solve the problem of malnutrition nutritious food is provided to the child. The feeding of the child is done in a very systematic and orderly manner in order to provide good nutrition to the child. The children in the NRH are fed with the needed amount of micronutrients, medicines, fluids and diets as required by the child. NRH mainly focuses on restoring the health status of severely malnourished children.

The feeding practice in the NRH depends upon the SD score of the child. The children with less than 3SD score are fed just with milk. There is some different feeding practice for the children besides children with less than 3SD score. The children with 3SD score to 4SD score are just fed with milk as this is a stage of chronic malnutrition. The detail of the feeding practice in the NRH is given below:

Feeding practice for the children having less than 3SD score: Only milk is fed to these children. There is a cycle for feeding milk to such children which is:

24 hourly milk-F75

After 24 hours: 3 hourly milk-F75

After 24 hours of feeding 3 hourly milk: 24 hour F-100

Table 13: Feeding Practice of Children having more than 3SD score

Feeding Practice for children other than those with less than 3SD score	
7:00	Super flour and egg
10:00	Morning meal (dal, rice, vegetables, pickle)
13:00	Fruits and milk
16:00	Jaulo/kheer/roti
19:00	Evening meal (dal, rice, vegetables, pickle)
22:00	Milk
Night feeding	
1:00	Milk
04:00	Milk

The recipes for making the food items, list of nutrient content in the food and the measuring unit and the protein and fat content in the food items used while preparing the food items is attached in APPENDIX 4.

At 6:00 in the morning there is a daily routine of taking the weight and temperature of the children. Medicines prescribed by the doctor to the children are fed during this time.

Immediately after the child is admitted to the NRH, the nursing staff immediately gives them Folic Acid (B-Complex), Vitamin-A and Diomin.

NRH administers vaccines to the children at NRH for MMR (measles, mumps, Rubela) and Vitamins to the pregnant mothers staying in the NRH.

Caretakers learn more about food, nutrition, health hygiene, and sanitation in the NRH. To emphasis on hand washing, mothers and children are lined up and involved actively in the hand washing practice daily before getting the meals. To educate the care takers about the importance of nutrition in daily life, food demonstrations and practical sessions is also carried out at NRH premises. All the caretakers participate actively in the educational session offered.

CHAPTER 5
SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. SUMMARY

Malnutrition is one of the major health problems in Nepal. According to Demographic and Health Survey-2006, 39 percent of the country's under-fives are underweight and 49 percent have stunted growth which is one of the highest in the world. About 1.7 million children under 5 suffer from Protein Energy Malnutrition at any given time and 40 percent of the mortality among children in the 0-12 month age group is caused by Protein Energy Malnutrition (National Planning Commission HMG Nepal and UNICEF, Sept 1990). The causes of inadequate nutrition in Nepal have been identified as: high rate of population growth, failure of food production to keep pace, limited land area, regional imbalance of food grain production, inadequate coverage of health services, lack of awareness on health and nutrition issues, inadequate land holding, long working hours of mothers, low literacy status of women, non-existing sanitation and personal hygiene, traditions and beliefs promoting faulty weaning and harmful feeding practices, traditional healing practices during illness.

Nutrition is both the cause and effect of the fluctuation of nutritional status of children. About 60 percent of under-five children are suffering from PEM. PEM is one of the most prevalent problems of nutrition which cause many disabilities and death among children. The causes of malnutrition which has been taken as large family size, poor environmental conduction, pre-mature termination of breast-feeding, failure of lactation and adverse cultural practices relating o child rearing and caring.

Concerning the main objectives to assess the nutritional status of the children staying in the Kathmandu, NRH, Baluwatar, this study was intended to examine and analyze the social and cultural factors that leads to malnutrition. In this study the researcher tried to explore the

nutritional knowledge of the mothers and identify the feeding practice of the children at the NRH.

Parent's education plays a vital role in the upbringing of a child. When the degree or level of education of parents is increased, the nutritional status of children is better than that of an illiterate parents or parents having low level education. In case of nutritional status through age composition of children it is seen that the children ranging from 6 to 24 months age group were found to be in poor nutritional status where 71.42 percent fall under second degree of protein energy malnutrition and 28.57 percent fall under third degree of PEM. Mainly in ethnic composition, the number of Chhetri children was higher compared to the other groups such as Brahmin, Newar, Magar, Occupational and Chhepang. While analyzing the economic sources of their parents wage plus agriculture dependent children were found to be more malnourished than those of wage plus business dependent. The knowledge and awareness of mothers/guardians was found to be very low. They were least aware of the symptoms of malnourishment and had no idea about rearing and caring of a malnourished child or how to maintain health and hygiene of a child, methods for preparing a balanced diet and the importance of breast-feeding. Mothers were seen to have a strong belief in traditional forms of treatment than the doctors. This is due to various reasons such as the strong social and cultural setup, the traditional belief that the traditional healers cures all the ills of the child, bad economic conditions of the family for taking their child to a better hospital for better treatment, etc…

The feeding of the child in the NRH is done in a very systematic and orderly manner in order to provide good nutrition to the child. The children in the NRH are fed with the needed amount of micronutrients, medicines, fluids and diets prescribed by the doctors and dietician as per the requirement to the child.

There are various social, cultural, economic factors leading to malnutrition. The causes of deficiency of malnutrition is due to improper care, bad economic conditions of the family, lack of breast-feeding, lack of balanced diet, improper mixing of ingredients, eating disorder, belief in traditional healing practice, prevalence of importance to a male child, patriarchal factors (no

access of women to economic or social aspects of life) and parents' lack of knowledge about child care.

5.2. CONCLUSION

Malnutrition is a problem in Nepal which is caused more by ignorance than poverty. Therefore, the mothers should be taught with the principles of good nutrition. They should be taught to prepare food for their children and how to feed them. Besides nutrition education, the mothers should be provided with child rearing and caring skills and knowledge of hygiene and should be counseled on reproductive health. Better nourished food and better caring for the children a**r**e the main factors which help children to be in good health. Children born to malnourished mothers are likely to be malnourished also. Low socio-economic status, education and social and cultural values and norms are the main threats for the well-being of the children.

The feeding practice in the NRH seemed to be as per the requirement of the child. The diet and medicines given to the children is prescribed by the doctors. Through the details of the case studies taken and the interview carried out with mothers and nurses, the causes of deficiency of malnutrition is due to improper care, bad economic conditions of the family, lack of breast-feeding, eating disorder, belief in traditional healing practice, prevalence of importance to a male child, patriarchal factors (no access of women to economic or social aspects of life) and parents' lack of knowledge about child care.

5.3. RECOMMENDATIONS FOR FURTHER RESEARCH

- As this study does not cover overall malnourished children of the country, therefore, a research on status of malnourished children can be carried out in various rural areas to obtain more reliable information which can be replicated in other sectors.

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APPENDIX: 1

Questionnaire for the Household Survey
Malnourished Children in a Rehabilitation Home (*Interview with Mothers)*

Socioeconomic Characteristics of Respondent of Malnourished Child

Name
Age
Sex
Level of Education
Religion
Village
Ward Number
District

Family Background and other socioeconomic characteristics of the malnourished child

Name of the Family Members	***Relationship to other members of the family***	***Age***	***Sex***	***Level of Education***	***Occupation***		***Marital Status***	***Age at Marriage***	***Income***	***Remarks***
					Pri	***Sec***				
1										
2										
3										
4										
5										
6										
7										
8										
9										

1. **What is the Age of your child?**
   a. >6months
   b. 6months-24months
   c. 24months-5years
   d. 5years-10years
   e. 10years and above

2. **How many times do you feed your child?**
   a. Once a day
   b. twice a day
   c. thrice a day
   d. four times a day
   e. five or more time

3. Do you feel your child eats properly all these times?

a. Yes b. No

If "No" Why??

……
……
……

4. What type of food are you feeding your child?

a. Jaulo b. Lito c. Biscuits
d. Green Vegetables e. Readymade Noodles f. Breast Milk
g. Cow/Buffalo milk h. Other **(specify).....**

5. Which food does your child prefers to eat the most?

a. Jaulo b. Lito c. Biscuits
d. Green Vegetables e. Readymade Noodles f. Breast Milk
g. Cow/Buffalo milk
h. Others **(specify).....**

6. In your opinion which type of food is the best for your child's health and why??

……
……
……

7. To what extent are you using locally available food items?

a. Plenty b. Adequate c. Low

8. a) How much land do you own?

Irrigated(khet) and Bari (inirrigated and pakho) land.

b) Is the grain produced sufficient for the whole year?

a. Yes b. No

If not, specify in months the deficiency of food

i) Less than 3 months ii) 3.1 months to 6 months
iii) 6.1 month to 9 months iv) more than 9 months in a year

Questions Related to Malnutrition

9. What do you know about Malnutrition? Explain

……
……
……

10. Does your child suffer from any diseases?

Yes *No*

If "yes" what type of disease it is?

a. Communicable *b. Non-Communicable*

d. Nutritional Deficiency *d. Others (Please Specify…)*

11. Can Nutritional Deficiency be a cause of disease?

Yes *No*

If "Yes", which disease?

……
……

12. In your opinion, if it is the Nutritional Deficiency, what are the leading factors of Malnutrition?

a. Low Birth Weight *b. Early terminates of breast-feeding*

c. Food Intake *d. Infection or other disease*

e. Other

Do you know its prevention?

a. Breast-feeding only *b. Complementary food with Breast-feeding*

c. Health Education *d. Don't know*

13. How do you know about nutrition/malnutrition?

a. Radio/TV *b. Printing Media*

c. Health Person *d. Nutritional Rehabilitation Home*

e. Others

Questions Related to Awareness

14. Do you know about personal cleanliness?

Yes No

If yes, how should the personal cleanliness be maintained?

……
……
……

15. Is it necessary to take advice from health person for the treatment of the child?

a. Yes b. No

16. When was the last time you sought their advice? How often do you seek their advice?

17. If you hear from them, then can you apply their suggestions? If not, what could be the hurdles?

18. Do you believe in traditional healers?

a. Yes b. No

19. Had you ever been to the traditional healers for your child's treatment?

a. Yes b. No

If "yes" why did you choose to take your child to the traditional healers rather than taking him/her to the hospitals? Explain.

……
……
……

20. In your opinion, if a child becomes serious s/he should be taken to the hospitals for rehabilitation or they should be taken to traditional healers?

……
……

Questions Related to the NRH

21. What type of service is being provided to you and your child in the NRH?

……
……
……

Are you satisfied with the above mentioned services provided to you and your child in the NRH? Explain.

……
……
……

22. What are the things you learnt from your stay at the NRH? Will you apply that knowledge in future after going back to your normal life?

……
……
……

23. Should there be any improvement in the service of the NRH? If "yes" please mention it.

……
……
……

APPENDIX: 2

For the social/cultural factors that lead to malnutrition there would be some case studies done in which the mothers will be asked the following questions:

*Locally available type of food eaten in every meal-across age, class and caste/ethnicity
*Food taboo and fasting days in the local culture
*Food eaten during pregnancy and motherhood
*Socio-cultural factors taking certain food in certain occasions only
*Local knowledge, ideas, interpretation on nutrition, malnutrition, health
*Find local concepts, terms for all the information

APPENDIX: 3

Weight-for-Height Reference Table

Boys' weight (kg)				Length (cm)		Girls' weight (kg)				
4SD (60%)	3SD (70%)	2SD (80%)	1SD (90%)	Median		Median	1SD (90%)	2SD (80%)	3SD (70%)	4SD (60%)
1.8	2.1	2.5	2.8	3.1	**49**	3.3	2.9	2.6	2.2	1.8
1.8	2.2	2.5	2.9	3.3	**50**	3.4	3.0	2.6	2.3	1.9
1.8	2.2	2.6	3.1	3.5	**51**	3.5	3.1	2.7	2.3	1.9
1.9	2.3	2.8	3.2	3.7	**52**	3.7	3.3	2.8	2.4	2.0
1.9	2.4	2.9	3.4	3.9	**53**	3.9	3.4	3.0	2.5	2.1
2.0	2.6	3.1	3.6	4.1	**54**	4.1	3.6	3.1	2.7	2.2
2.2	2.7	3.3	3.8	4.3	**55**	4.3	3.8	3.3	2.8	2.3
2.3	2.9	3.5	4.0	4.6	**56**	4.5	4.0	3.5	3.0	2.4
2.5	3.1	3.7	4.3	4.8	**57**	4.8	4.2	3.7	3.1	2.6
2.7	3.3	3.9	4.5	5.1	**58**	5.0	4.4	3.9	3.3	2.7
2.9	3.5	4.1	4.8	5.4	**59**	5.3	4.7	4.1	3.5	2.9
3.1	3.7	4.4	5.0	5.7	**60**	5.5	4.9	4.3	3.7	3.1
3.3	4.0	4.6	5.3	5.9	**61**	5.8	5.2	4.6	3.9	3.3
3.5	4.2	4.9	5.6	6.2	**62**	6.1	5.4	4.8	4.1	3.5
3.8	4.5	5.2	5.8	6.5	**63**	6.4	5.7	5.0	4.4	3.7
4.0	4.7	5.4	6.1	6.8	**64**	6.7	6.0	5.3	4.6	3.9
4.3	5.0	5.7	6.4	7.1	**65**	7.0	6.3	5.5	4.8	4.1
4.5	5.3	6.0	6.7	7.4	**66**	7.3	6.5	5.8	5.1	4.3
4.8	5.5	6.2	7.0	7.7	**67**	7.5	6.8	6.0	5.3	4.5
5.1	5.8	6.5	7.3	8.0	**68**	7.8	7.1	6.3	5.5	4.8
5.3	6.0	6.8	7.5	8.3	**69**	8.1	7.3	6.5	5.8	5.0
5.5	6.3	7.0	7.8	8.5	**70**	8.4	7.6	6.8	6.0	5.2
5.8	6.5	7.3	8.1	8.8	**71**	8.6	7.8	7.0	6.2	5.4
6.0	6.8	7.5	8.3	9.1	**72**	8.9	8.1	7.2	6.4	5.6
6.2	7.0	7.8	8.6	9.3	**73**	9.1	8.3	7.5	6.6	5.8
6.4	7.2	8.0	8.8	9.6	**74**	9.4	8.5	7.7	6.8	6.0
6.6	7.4	8.2	9.0	9.8	**75**	9.6	8.7	7.9	7.0	6.2
6.8	7.6	8.4	9.2	10.0	**76**	9.8	8.9	8.1	7.2	6.4
7.0	7.8	8.6	9.4	10.3	**77**	10.0	9.1	8.3	7.4	6.6
7.1	8.0	8.8	9.7	10.5	**78**	10.2	9.3	8.5	7.6	6.7
7.3	8.2	9.0	9.9	10.7	**79**	10.4	9.5	8.7	7.8	6.9
7.5	8.3	9.2	10.1	10.9	**80**	10.6	9.7	8.8	8.0	7.1
7.6	8.5	9.4	10.2	11.1	**81**	10.8	9.9	9.0	8.1	7.2
7.8	8.7	9.6	10.4	11.3	**82**	11.0	10.1	9.2	8.3	7.4
7.9	8.8	9.7	10.6	11.5	**83**	11.2	10.3	9.4	8.5	7.6
8.1	9.0	9.9	10.8	11.7	**84**	11.4	10.5	9.6	8.7	7.7
7.8	8.9	9.9	11.0	12.1	**85**	11.8	10.8	9.7	8.6	7.6
7.9	9.0	10.1	11.2	12.3	**86**	12.0	11.0	9.9	8.8	7.7

8.1	9.2	10.3	11.5	12.6	**87**	12.3	11.2	10.1	9.0	7.9

a Length is measured for children below 85 cm. For children 85 cm or more, height is measured. Recumbent length is on average 0.5 cm greater than standing height; although the difference is of no importance to individual children, a correction may be made by subtracting 0.5 cm from all lengths above 84.9 cm if standing height cannot be measured.
b SD: standard deviation score (or Z-score). Although the interpretation of a fixed percent-of-median value varies across age and height, and although generally the two scales cannot be compared, the approximate percent-of-median values for –1 and –2 SD are 90% and 80% of median, respectively (*Gorstein J et al. Issues in the assessment of nutritional status using anthropometry*. Bulletin of the World Health Organization, 1994, 72:273-283).

Weight-for-Height Reference Table

Boys' weight (kg)				Length (cm)			Girls' weight (kg)			
4SD (60%)	**3SD (70%)**	**2SD (80%)**	**1SD (90%)**	**Median**		**Median**	**1SD (90%)**	**2SD (80%)**	**3SD (70%)**	**4SD (60%)**
8.3	9.4	10.5	11.7	12.8	**88**	12.5	11.4	10.3	9.2	8.1
8.4	9.6	10.7	11.9	13.0	**89**	12.7	11.6	10.5	9.3	8.2
8.6	9.8	10.9	12.1	13.3	**90**	12.9	11.8	10.7	9.5	8.4
8.8	9.9	11.1	12.3	13.5	**91**	13.2	12.0	10.8	9.7	8.5
8.9	10.1	11.3	12.5	13.7	**92**	13.4	12.2	11.0	9.9	8.7
9.1	10.3	11.5	12.8	14.0	**93**	13.6	12.4	11.2	10.0	8.8
9.2	10.5	11.7	13.0	14.2	**94**	13.9	12.6	11.4	10.2	9.0
9.4	10.7	11.9	13.2	14.5	**95**	14.1	12.9	11.6	10.4	9.1
9.6	10.9	12.1	13.4	14.7	**96**	14.3	13.1	11.8	10.6	9.3
9.7	11.0	12.4	13.7	15.0	**97**	14.6	13.3	12.0	10.7	9.5
9.9	11.2	12.6	13.9	15.2	**98**	14.9	13.5	12.2	10.9	9.6
10.1	11.4	12.8	14.1	15.5	**99**	15.1	13.8	12.4	11.1	9.8
10.3	11.6	13.0	14.4	15.7	**100**	15.4	14.0	12.7	11.3	9.9
10.4	11.8	13.2	14.6	16.0	**101**	15.6	14.3	12.9	11.5	10.1
10.6	12.0	13.4	14.9	16.3	**102**	15.9	14.5	13.1	11.7	10.3
10.8	12.2	13.7	15.1	16.6	**103**	16.2	14.7	13.3	11.9	10.5
11.0	12.4	13.9	15.4	16.9	**104**	16.5	15.0	13.5	12.1	10.6
11.2	12.7	14.2	15.6	17.1	**105**	16.7	15.3	13.8	12.3	10.8
11.4	12.9	14.4	15.9	17.4	**106**	17.0	15.5	14.0	12.5	11.0
11.6	13.1	14.7	16.2	17.7	**107**	17.3	15.8	14.3	12.7	11.2
11.8	13.4	14.9	16.5	18.0	**108**	17.6	16.1	14.5	13.0	11.4
12.0	13.6	15.2	16.8	18.3	**109**	17.9	16.4	14.8	13.2	11.6
12.2	13.8	15.4	17.1	18.7	**110**	18.2	16.6	15.0	13.4	11.9
12.5	14.1	15.7	17.4	19.0	**111**	18.6	16.9	15.3	13.7	12.1
12.7	14.4	16.0	17.7	19.3	**112**	18.9	17.2	15.6	14.0	12.3
12.9	14.6	16.3	18.0	19.6	**113**	19.2	17.5	15.9	14.2	12.6
13.2	14.9	16.6	18.3	20.0	**114**	19.5	17.9	16.2	14.5	12.8
13.5	15.2	16.9	18.6	20.3	**115**	19.9	18.2	16.5	14.8	13.0
13.7	15.5	17.2	18.9	20.7	**116**	20.3	18.5	16.8	15.0	13.3
14.0	15.8	17.5	19.3	21.1	**117**	20.6	18.9	17.1	15.3	13.6
14.3	16.1	17.9	19.6	21.4	**118**	21.0	19.2	17.4	15.6	13.8
14.6	16.4	18.2	20.0	21.8	**119**	21.4	19.6	17.7	15.9	14.1
14.9	16.7	18.5	20.4	22.2	**120**	21.8	20.0	18.1	16.2	14.3
15.2	17.0	18.9	20.7	22.6	**121**	22.2	20.3	18.4	16.5	14.6
15.5	17.4	19.2	21.1	23.0	**122**	22.7	20.7	18.8	16.8	14.9
15.8	17.7	19.6	21.5	23.4	**123**	23.1	21.1	19.1	17.1	15.1
16.1	18.0	20.0	21.9	23.9	**124**	23.6	21.6	19.5	17.4	15.4
16.4	18.4	20.4	22.3	24.3	**125**	24.1	22.0	19.9	17.8	15.6
16.7	18.7	20.7	22.8	24.8	**126**	24.6	22.4	20.2	18.1	15.9
17.0	19.1	21.1	23.2	25.2	**127**	25.1	22.9	20.6	18.4	16.2
17.3	19.4	21.5	23.6	25.7	**128**	25.7	23.3	21.0	18.7	16.4
17.6	19.8	21.9	24.1	26.2	**129**	26.2	23.8	21.4	19.0	16.7
17.9	20.1	22.3	24.5	26.8	**130**	26.8	24.3	21.8	19.4	16.9

[a] Length is measured for children below 85 cm. For children 85 cm or more, height is measured. Recumbent length is on average 0.5 cm greater than standing height; although the difference is of no importance to individual children, a correction may

be made by subtracting 0.5 cm from all lengths above 84.9 cm if standing height cannot be measured.
b SD: standard deviation score (or Z-score). Although the interpretation of a fixed percent-of-median value varies across age and height, and although generally the two scales cannot be compared, the approximate percent-of-median values for –1 and –2 SD are 90% and 80% of median, respectively (*Gorstein J et al. Issues in the assessment of nutritional status using anthropometry*. Bulletin of the World Health Organization, 1994, 72:273-283).

The above table gives reference to weight-for-height which is adopted through the guidelines prescribed by WHO. The left side of the table describes the weight-for-height for boys and the right side describes the weight-for-height for girls. Median is considered as the normal or 100% weight for the children above 5 years of age whereas; SD is taken for children under 5 years of age. In the table above, 1SD, 2SD, 3SD and 4SD are taken for children below 5 years.

- 1SD in the table means normal for the child below 5 years
- 2SD here means moderate for the child below 5 years
- 3SD means malnourished for the child below 5 years
- Lastly, 4SD means severely malnourished child below 5 years.

Length in the above table means the height of the children which is calculated in centimeters.

APPENDIX: 4

List of Nutrients containing in the food items

S.N.	Name	Kcal	Protein	S.N.	Name	Kcal	Protein	S.N.	Name	Kcal	Protein
1	**Rice**			**2**	**Lentil (mix)**			**3**	**Kwati**		
Mea.	Small Spoon				Boul				Boul		
Unit	1 S.(100gm)	110	2		1 B.(200ml)	90	5		1 B.(200ml)	90	6
	1/2 S.	55	1		1/2 B.	45	2.5		1/2 B.	45	3
	1/3 S.	36.6	0.6		1/3 B.	30	1.6		1/3 B.	30	2
	1/4 S.	27.5	0		1/4 B.	22.5	1.25		1/4 B.	22.5	1.5
	1/5 S.	22	0		1/5 B.	18	1		1/5 B.	18	1.2
4	**Chicken**			**5**	**Goat Meat**			**6**	**Liver**	**Kcal**	**Protein**
Mea.	Piece	Kcal	Protein		Piece	Kcal	Protein		Chicken liver		
Unit	1 PC(25gm)	75.5	4.5		1 PC(25gm)	29.5	5.33		1 PC (20gm)	28.8	3.56
	1/2 PC	37.75	2.25		1/2 PC	14.75	2.6				
	1/3 PC	25.16	1.5		1/3 PC	9.8	1.783		Goat Liver		
	1/4 PC	18.875	1.125		1/4 PC	7.3	1.3		1 Pc (20gm)	21.4	4
7	**Egg Yolk**	**Kcal**	**Protein**	**8**	**Egg White**	**Kcal**	**Protein**	**9**	**Egg**	**Kcal**	**Protein**
Mea.	Piece				Piece				Piece		
Unit	1 PC(20gm)	65	3.9		1 PC(40gm)	40	3.9		1 PC(60gm)	104	7.8
	1/2 PC	32.5	1.95		1/2 PC	20	1.95		1/2 PC	52	3.9
	1/3 PC	21.6	1.3		1/3 PC	13.3	1.3		1/3 PC	34.6	2.6
	1/4 PC	16.25	0.975		1/4 PC	10	-		1/4 PC	26	1.95
10	**Lito**	**Kcal**	**Protein**	**11**	**Lito Haluwa**	**Kcal**	**Protein**	**12**	**Lito Roti**	**Kcal**	**Protein**
Mea.	Boul				Boul				Piece		
Unit	1/2 tsp(2.5gm)	9.15	0.675		1B(200ml)	250.4	8.8		1 PC(20gm)	62.6	2.2
	1 tsp	18.3	1.35		1/2B	125.2	4.4		1/2 PC	31.3	1.1
	2 tsp	36.6	2.7		1/3B	83.46	2.9		1/3 PC	20.86	0.73
	3 tsp	54.9	4.05		1/4B	62.6	2.2		1/4 PC	15.65	-

	4 tsp	73.2	5.4		1/5B	50	1.76		1/5 PC	12.52	-
13	**Suji Haluwa**	**Kcal**	**Protein**	**14**	**Suji Roti**	**Kcal**	**Protein**	**15**	**Suji Kheer**	**Kcal**	**Protein**
Mea.	Boul				Piece				Boul		
Unit	1B(200gm)	243.2	4.16		1 PC(20gm)	60.8	1.04		1B(200gm)	223	5.6
	1/2B	121.6	2.08		1/2 PC	30.4	0.52		1/2B	116.5	2.8
	1/3B	81.6	1.386		1/3 PC	20.26	0.346		1/3B	77.6	1.86
	1/4B	60.8	1.04		1/4 PC	15.2	0.26		1/4B	55.75	1.4
	1/5B	48.64	0.832		1/5 PC	121.6	2.08		1/5B	44.6	1.12
16	**Chiura Kheer**	**Kcal**	**Protein**	**17**	**Wheat Roti**	**Kcal**	**Protein**	**18**	**Potato**	**Kcal**	**Protein**
Mea.	Boul				Piece				Piece		
Unit	1B(200gm)	237	4.7		1 PC(20gm)	60.1	-		1 PC(20gm)	20	0.32
	1/2B	118.5	2.35		1/2 PC	30.05	-		1/2 PC	10	0.16
	1/3B	79	1.56		1/3 PC	20.03	-		1/3 PC	6.6	0.1
	1/4B	59.25	1.175		1/4 PC	15.025	-		1/4 PC	5	0.8
	1/5B	47.4	0.94		1/5 PC	120.2	-		1/5 PC	4	0.064
19	**Til Achar**	**Kcal**	**Protein**	**20**	**Banana**	**Kcal**	**Protein**	**21**	**Papaya**	**Kcal**	**Protein**
Mea.	Tea Spoon				Piece				Piece		
Unit	1 tsp (5gm)	20			1 PC (65gm)	75			1PC(100gm)	32	-
	1/2 tsp	10			1/2 PC	37.5			1/2 PC	16	-
	1/3 tsp	6.6			1/3 PC	25			1/3 PC	10.6	-
	1/4 tsp	5			1/4 PC	18.75			1/4 PC	8	-
	1/5 tsp	4			1/5 PC	15					
22	**Orange**	**Kcal**	**Protein**	**23**	**Mango**	**Kcal**	**Protein**	**24**	**Jaulo**	**Kcal**	**Protein**
Mea.	Piece				Piece				Bowl		
Unit	1 PC (100gm)	48	-		1PC(100gm)	74	-		1B (100gm)	210	6.32
	1/2 PC	24	-		1/2 PC	37	-		1/2B	105	3.16
	1/3 PC	16	-		1/3 PC	24.6	-		1/3B	70	2.106
	1/4 PC	12	-		1/4 PC	18.5	-		1/4B	52.5	1.58

Nutritional Rehabilitation Home

Recipes

	Particular	Quantity in gm	Kcal	Protein in gm	Fat in gm	Carbohydrate gm	Remarks
1	**Mixed Dal**						
	a. Rahar Dal (Pigeon pea)	20	67	4.46	0.34	11.52	
	b. Chhana Dal (Bengal gram)	20	69.4	4.8	0.28	11.96	
	c. Mung Dal (Green gram))	20	69.6	4.9	0.24	11.98	
	d. Mas Dal (Black gram)	20	74	4.16	1.12	11.92	
	e. Musuro Dal (Lentil)	20	68.6	5.02	0.14	11.8	
	Total	**100**	**349**	**23.34**	**2.12**		
2	**Kwati**						
	Chana (Bengal gram)	11	39.6	1.881	0.583	6.699	
	Sano Karau (Field pea)	11	34.65	2.167	0.121		
	Geda mas Black gram)	11	38.17	2.64	0.154	6.215	
	Geda mung (Green gram)	11	36.74	2.64	0.143	6.237	
	Rajma	11	38.06	2.519	0.143	6.666	
	Simi (Field bean)	11	38.67	2.739	0.088	6.611	
	Bhatamas (Soya bean)	11	47.52	4.763	2.145	2.299	
	Bodi (Cowpea)	11	35.53	2.651	0.11	5.995	
	Massang (Ricebean)	11	36.52	2.365	0.11	5.995	
	Total	**99**	**345.46**	**24.365**	**3.597**		
3	**Jaulo**						
	a. Rice	62.5 gm	215	4.25		48.875	
	b. Dal (Mung and Musuro)	62.5 gm	197	15.5		40.128	
	c. Leafy vegetable	50 gm					
	d. Oil	25 ml	225		25gm		
	e. Water	700-800ml					
	Total (After cooking it becomes 600gm)		637	19.75	25gm		

	100 gm cooked Jaulo	**100 gm**	**105**	**3.16**	**4.0**		
4	**Chiura Kheer**						
	a. Chiura	100 gm	346	6.6	1.2	77.3	
	b. Sugar	25 gm	100			24.85	
	c. Oil	10 ml	90				
	d. Water	250 ml			10		
	e. Milk mix	250 ml	175	7.5	7.5	11.25	
	Total (After cooking it becomes 600gm)		711	14.1	18.7		
	In 100gm cooked kheer		**118.5**	**2.35**	**3.11**		
4	**Chiura Kheer**						
	a. Chiura flour	100 gm	346	6.6	1.2	77.3	
	b. Sugar	25 gm	100			24.85	
	c. Oil	10 ml	90				
	d. Water	250ml			10		
	e. Milk mix	250 ml	175	7.5	7.5	11.25	
	Total (After cooking it becomes 600gm)		711	14.1	18.7		
	In 100gm cooked kheer		**118.5**	**2.35**	**3.11**		
5	**Wheat Roti**						
	a. Wheat flour	100 gm	341	12.1	1.7	69.4	
	b. Sugar	20 gm	80			19.88	
	c. Cooking fat	20 ml	180		20		
	d. Water	150ml					
	Total (After it becomes 10 roti)		601	12.1	21.7		
	1pc roti becoms 20gm	**20 gm**	**60.1**	**1.21**	**2.17**		
6	**Wheat haluwa (Besan mix)**						
	a. Wheat flour	75 gm	255.75	9.075	1.275	52.05	
	b. Besan	25 gm	93	5.2	1.4	14.95	
	c. Sugar	20 gm	80			19.88	
	d. Cooking fat	20 ml	180		20		
	e. Water	400-500 ml					
	Total(After cooking it becomes 500gm)		668.85	15.485	24.845		
	1/2 bowl (100 gm)	**100 gm**	**121.75**	**2.855**	**4.255**		
7	**Lito Roti**						
	a. Lito flour	100 gm	366	20.7	8.3	58.1	

	b. Sugar	20 gm	80			19.88	
	c. Cooking fat	20 ml	180		20		
	d. Water	150ml					
	Total (After cooking it becomes 10roti)						
	1pc roti contain 20gm	**20 gm**	**62.6**	**2.2**	**2.83**		
8	**Lito Haluwa**						
	a. Lito flour	100gm	366	20.7	8.3	58.1	
	b. Sugar	20 gm	80			19.88	
	c. Cooking fat	20ml	180		20		
	d. Water	400-500 ml					
	After cooking it becomes 500gm						
	Total (5oogm cooked haluwa)		626	20.7	28.3		
	1/2 bowl (100 gm) contains	**100 gm**	**125.2**	**4.4**	**5.66**		
9	**Suji Roti**						
	a. Suji flour	100gm	348	10.4	0.8	74.8	
	b. Sugar	20 gm	80			19.88	
	c. Cooking fat	20 ml	180		20		
	d. Water	150ml					
	Total (After cooking it becomes 10 roti)		608	10.4	20.8		
	1pc roti contain 20gm	**20 gm**	**60.8**	**1.04**	**2.08**		
10	**Suji Haluwa**						
	a. Suji flour	100 gm	348	10.4	0.8	74.8	
	b. Sugar	20 gm	80			19.88	
	c. Cooking fat	20 ml	180		20		
	d. Water	400-500 ml					
	Total After cooking it becomes 500gm		**608**	**10.4**	**20.8**		
11	**Suji Kheer**						
	a. Suji flour	125 gm	435	13	1	93.5	
	b. Sugar	50gm	200			49.7	
	c. Oil	20 ml	180		20		
	d. Water	500 ml					
	e. Milk mix	500 ml	350	15	15	22.5	
	TOTAL (After cooking it becomes 1 kg)		1165	28	36		

	1/2 bowl (100 gm)	**100 gm**	**116.5**	**2.8**	**3.6**		
12	**Vermicelli (Sewaii) Kheer**						
	Vermicelli	100 gm	353	10.5	1	77.5	According to the Packet
	b. Sugar	50 gm	199			49.7	
	c. Cooking fat	20 ml	180		20		
	d. Water	300ml					
	e. Milk mix	300ml	210	9	9	13.5	
	Total (After cooking it becomes 675-700gm)						
	1/2 bowl (100 gm)	**100 gm**	**133**	**2.7**	**4.2**		
13	**Milk Lito Khole**						
	a. Lito flour	50 gm	183	10.35	4.15	29.05	For those children who can't take adequate amount or not gaining wt.
	b. Sugar	75 gm	300			74.55	
	c. Cooking fat	20 ml	180		20		
	d. Milk	1000ml	1400	30	30	45	
	Total (After cooking it becomes 1liter)						
	1/2 bowl (100 ml)	**100 ml**	**133.55**	**4.235**	**5.22**	**14.36gm**	

Note: 100 gm sugar contains 99.4 gm carbohydrate

Aachar		Quati				
1	Til and Raddish	**Legumes**	Qty in gm	Kcal	Protein	Fat
2	Tomato	Chana (Bengal gram whole)	100	360	17.1	5.3
3	Dhaniya and Tomato	Sano Karau (Field pea)	100	311	19.5	1.08
4	Carrot and Til	Geda mas Black gram)	100	347	24	1.4
5	Cabbage and Til	Geda mung (Green gram)	100	348	24.5	1.3
6	Yellow pumpkin and Til	Rajma	100	346	22.9	1.3
7	Potato and Til	Simi (Field bean)	100	347	24.9	0.8
8	Til	Bhatamas (Soya bean)	100	432	43.2	19.9
9	Cucumber and Til	Bodi (Cowpea)	100	323	24.1	1

10	Dhaniya and Til	Massang (Ricebean)	100	332	21.5	1
11	Soyabean and Tomato	**Total**				
12	ground nut and Tomato					
13	Brinjal					
14	Lapsi					
15	Pudina and til					
16	Pudina and Tomato					

Nutritional Rehabilitation Home

SN	Name of Food	Measuring unit	Kcal	Protein in gm	Fat in gm
1	**Rice (Cooked)**	1 Spoon (100 gm)	110	2.0	-
2	**Mixed Dal (25gm)**	1 bowl cooked (200 ml)	90	5.0	0.424
3	**Kwati (25gm)**	1 bowl cooked (200 ml)	90	6.0	1
		25gm dry kwati makes 50 gm after germination and it becomes 200ml after cooking)			
4	**Potato**	1pc (20 gm)	20	0.32	-
5	**Chicken (Without oil)**	100 gm (4-5 pcs)	302	18.0	25.0
	a. Chicken	1 pc (25 gm)	75.5	4.5	6.25
6	**Motton (Without oil)**	100 gm (4-5 pcs)	118	21.4	3.6
	a. Motton	1 pc (25 gm)	29.5	5.35	0.9
7	**Egg**	1pc (50-60)	88-104	6.65-7.8	6.65-7.8
	a. Egg yolk (Whole)	15-20 gm	65-75	3.9	7.8
	b. Egg white (Whole)	35-40 gm	35-40	3.9	trace
8	**Jaulo**	1/2 bowl (100 gm)	105	3.16	4.0
9	**Bread**	1 pc (25 gm)	60	2	
10	**Chiura**	1 muthi (25 gm)	86.5	1.4	0.3
11	**Chiura Kheer**	1/2 bowl (100 gm)	118.5	2.35	3.11
12	**Wheat Roti**	1 pc (20 gm)	60.1	1.21	2.17
13	**Wheat Haluwa, Besan mix**	1/2 bowl (100 gm)	121.75	2.855	4.255

14	**Lito**	1 tsp (5 gm)	18.3	1.35	0.415
15	**Lito Roti**	1 pc (20 gm)	62.6	2.2	2.83
16	**Lito Haluwa**	1/2 bowl (100 gm)	125.2	4.4	5.66
17	**Suji Roti**	1 pc (20 gm)	60.8	1.04	2.08
18	**Suji Haluwa**	1/2 bowl (100 gm)	121.6	2.08	4.16
19	**Suji Kheer**	1/2 bowl (100 gm)	116.5	2.8	3.6
20	**Til Achar**	1 tsp (5 gm)	20	0.9	2.165
21	**Soyabean Achar**	1 tsp (5 gm)	21.6	2.6	0.9
22	**Ground-nut Achar**	1 tsp (5 gm)	28.35	1.265	2.0
23	**Oil / Ghee**	1 tsp (5 gm)	45	--	5
24	**Sugar**	1 tsp (5 gm)	20	--	--
25	**Banana (Without skin)**	60-65 gm	70-75	0.72	--
26	**Papaya**	100 gm	32	0.6	0.1
27	**Orange**	100 gm	48	1.0	0.2
28	**Sweet lime**	100 gm	43	0.8	0.3
29	**Guava**	100 gm	51	0.9	--
30	**Mango**	100 gm	74	--	--