# CHAPTER-I

# INTRODUCTION

## 1.1 Background of the Study

Nutrition, nourishment or aliment is the supply of materials - food- required by organisms and cells to stay alive. Food and nutrition is the fundamental requirement of human beings. Without food and nutrition, living beings can't be existed in the nature because food is the mixture of such raw materials in which nutrients are contained which provides the energy for body, growth and development of body, protection from different diseases and regulate the proper functioning of cells, tissues and human organs.

Thus, Nutrition is the scientific term of food which provides the necessary nutrients such as carbohydrate, proteins, vitamins, fat, minerals, water etc that supply energy for physical activity and maintaining temperature of body, helps to grow and develop our body and keep our body healthy by protecting from different kinds of diseases. Nutrition is the process in which foods that may be in the form of solid, semi-solid or liquid is digested in turn builds and develop the cells and tissues and repair them, enhance the energy in the body and develop the immunity power to resist the different diseases to the human beings.

School age is the active growing phase of childhood. Primary school age is a dynamic period of physical growth as well as of mental development of the child. Under nutrition in childhood was and is one of the reasons behind the high child mortality rate observed in developing countries. Chronic under nutrition in childhood is linked to slower cognitive development and serious health impairments later in life that reduce the quality of life of individuals. Nutritional status is an important index of this quality. In this respect, understanding the nutritional status of children has far-reaching implications for the better development of future generations.

Geographical location of Rural dwellers or primary students living in rural area are compelled to expose in poor environmental conditions such as poor arrangement of drinking water, sanitation and no removable of wastes. Ignorance, difficult and lack of education in rural areas may result improper food habits, use of excessive junk food, life without physical fitness, sedentary life styles and lack of organic food, the health

condition of students of primary school is degrading. In the same way, the primary students who are dwelling in Rural areas are not having sufficient food or nutrition due to financial problem or scarcity of food. Lack of nutritional knowledge , lack of necessary health center, medicines and health care personnel, primary students living in Rural areas are at especially high risk for health and nutritional problems.

### 1.1.1 Condition of Nutrition in Primary students

Approximately two billion people in the world are suffering from various forms of mal nutrition. Malnutrition is a mainly cause of death by which 2.6 million children are dying due to the mal nutrition each year. 1 in 4 of the world children are stunted, in developing countries this is high as 1 in 3. This means their bodies fail to develop fully as a result of mal nutrition. Under nutrition accomplish for 11 percent of the global burden of diseases and is considered the number of risks to health worldwide. (*http://www.gainhealth.org*)

In South Asia 46% of children are wasted, 44% of children are stunted where as there are 22% stunted and 12% wasted children in the world. (*unicef-july-2018*). As per Nepal Demographic and Health Survey 2006 (NDHS, 2006), 49% children under five years suffer from chronic mal nutrition (stunting), 39% of the children are under weight (low weight for age) and 13% are wasted (thin for their age). (*http://www.npcs.org.com*). The total population of world is approximately 7,638,199,838 and out of this the percentage of children under 14 years is 26.3% . As per Central Bureau of Statistics (CBS-2011), the total population of Nepal is 2,64,94,504 in which 34.6% is covered by Children less than 14 years who are school going students. Therefore it is very important to understand the importance of nutrition for those Nepali children who will be going to be the productive man power to develop our country. If we are not concerned or our government does not initiate the Proper Nutrition Plan for the Primary students, they will be not productive man power for building great nation instead that they may turn the burden for our country.

It is clearly proven that the nutrition condition of our primary students or school going children is in alarming condition. So, it should be high priority for arranging the proper and more conscious about the Nutrition which helps to avoid any nutritive lack diseases to the children and makes them healthy in terms of physical, mental and psychological.

### 1.1.2 Basic Food Groups and its Sources

| | |
|---|---|
| i. Classification by Origin | Sources |
| a. Animal Sources/Origin | Food which can be used from animals |
| b. Plant sources/Origin | Food which can be used from plants/vegetables |
| ii. Classification by Chemical Composition | |
| a. Carbohydrate | Cereals, Potatoes, Dried fruits, Sugar, grain etc |
| b. Proteins | Milk and milk products, gram, beans, pulses etc |
| c. Vitamins | Milk, Green leafy vegetables, fruits, liver, Sun, fish, cauliflower, Spinach, Soya bean etc |
| d. Minerals | Milk and milk products, cheese, Egg Yolk, Meat, Fish, Liver, Beet root, Leaves, flowers etc. |
| e. Fats | Meat, Fish, Milk, Pea Nut, Coconut, Mustard etc |
| f. Water | Rain water, Surface water, Underground water |

iii. Classification by Nutritive Value

a. Cereals and Millets

b. Fruits

c. Pulses

d. Food from Animals

e. Vegetables

f. Fats and Oil

g. Nuts and Oil seeds

h. Sugar

i. Fiber Foods

iv. Classification by nutrients

a. Micro Nutrients Vitamins and Minerals

b. Macro Nutrients Carbohydrates, Fats, Proteins

v. Classification by Predominant Function

a. Energy Yielding Food Group Carbohydrate and Fats

b. Body Building Food Group Proteins

c. Protective Food Group Vitamins and Mineral

1. Classification of Carbohydrates

i. Mono-saccharides (Simple Sugar)

a. Glucose b. Fructose c. Lactose

ii. Di-saccharides (Double sugar)

a. Sucrose b. Maltose c. Lactose

iii. Poly saccharides (Complex sugar)

a. Starch b. Dextrin c. Glycogen d. Cellulose

2. Classification of Proteins

i. Complete Proteins ii. Partially Complete Proteins iii. Incomplete Proteins

3. Classification of Fat

i. Compound Lipid ii. Essential Lipid

4. Classification of Vitamins

i. Fat Soluble Vitamin

Vitamin A, Vitamin D, Vitamin E , Vitamin K

ii. Water Soluble Vitamins

Vitamin B-complex, Vitamin C

5. Classification of Minerals

i. Major Minerals

Calcium, Phosphorus, Potassium, Sodium, Sulphur, Chlorine, Magnesium

ii. Minor Minerals

Iron, Iodine (*Source: Fundamental of Public Health, Quest Pub*.)

**1.1.3 Malnutrition**

Malnutrition refers to insufficient, excessive or imbalanced consumption of nutrients by human. In developed countries, the diseases of malnutrition are most often associated with nutritional imbalances or excessive consumption. In developing countries like Nepal malnutrition is more likely to be caused by poor access to a range of nutritious foods or inadequate knowledge. When too much of one or more nutrients is present in the diet to the exclusion of the proper amount of other nutrients, the diet is said to be unbalanced. High Calorie food ingredients such as vegetable oil and sugar are referred to as "empty calories" because they displace from the diet foods that also contain protein, vitamins, minerals and fibers.

It is proved that the awareness of nutritious meal choices and establishing long-term habits of healthy eating have a positive effect on cognitive and spatial memory capacity, with potential to increase a student's ability to process and retain academic information. Better learning performance is associated with diet-induced effects on learning and memory ability.

Malnutrition is also known as improper or bad nutrition to the people. The improper nutrition intake of more than our body requirement or less than our body requirement. Malnutrition is the condition in which people are not able to have the nutrients as per their age, sex and physical needs to develop or growth of physical status. In context of primary students, they are in growing stages in terms of physical, mental and psychological. So, they are in need of proper nutrition. Malnutrition (over nutrition and under nutrition) in school going children causes problems in physical and mental development along with decrease in immunity power whereby they can be the nest of any diseases easily. Therefore, Malnutrition in school going children can certainly

affect and lead them to the darkness of future because of different diseases to their body.

### 1.1.4 Impacts and diseases caused by lack of nutrition

The Nepalese Child Health Division of the Ministry of Health and Population (MOHP), has launched several child survival intervention, including various operational initiatives, to improve the health of children in Nepal. These includes the Expanded Program on Immunization (EPI), the Community-Based Integrated Management of Childhood illness (CB-IMCI), Young child Feeding program, a micro-nutrients supplementation program, Vitamin A and de-worming campaign and the Community-Based Management of Acute Malnutrition program.

Malnutrition remains a serious obstacle to child survival, growth and development in Nepal. The most common form of malnutrition is protein energy malnutrition (PEM). Other common forms of malnutrition are iodine, iron and Vitamin A deficiencies. These deficiencies often appear together in many cases. Moderately acute and severely acute malnourished children are more likely to die from common childhood illness than those adequately nourished. In addition, malnutrition constitutes a serious threat to young children and is associated with about one third of child mortality. Major causes of PEM in Nepal is low birth weight of below 2.5kg due to poor maternal nutrition, inadequate dietary intake, frequent infections, household food insecurity, poor feeding behavior and poor care and practices leading to an intergenerational cycle of malnutrition.

The lack of nutrition such as carbohydrate in the body of school going children, the primary students may cause obstacle in physical and mental development. The efficiency of activities may decrease-Asthenia, decrease in Immunity power in body and ultimately the primary students may suffer from Marasmus disease.

During the age of primary students, the development and growth of cells and tissues are in rapid and high rate of development. Physical and Mental growth are so rapid that they are in need of extreme proteins intake. If the intake of proteins during this period is insufficient, students of primary level will not have power of repair of damaged cells and tissues and rebuilding of cells and tissues and finally weight and height of such children will decrease instead of having proper growth. Primary

students certainly suffer from Kwashiorkor disease and may die because of such malnutrition disease.

Due to the deficiency of Fat in the body of primary students, they may suffer from phrynodema if they have less amount of fat in body. There are different types of vitamins from water soluble and fat soluble which are important for our body and its deficiency in our food may cause different types of diseases which mentioned as below:

- Lack of Vitamin A in our food, primary students and people may suffer from Night Blindness and decrease in immunity power.
- Lack of Vitamin D in the food of primary students, they will suffer from Rickets in children and Oestomalacia in young and adult.
- Lack of Vitamin E in the food of primary students, they will have sterility in female.
- Lack of Vitamin K in the food of primary students, the clotting of blood during incident will be affected and the primary students may become faint and die due to more bleeding during accident. It may affect the digestive and nervous system of children.
- Lack of Vitamin B1(Thiamine) in the food of primary students, they will suffer from the disease called Beri-Beri in which primary students may get the problems in Peripheral Nervous System, digestion and affect the swollen heart.
- Lack of Vitamin B2 (Riboflavin) in the food, the primary students may have the problem in vision, swollen eyes and continuous tears in eyes along with obstacle in physical health development.
- Lack of Vitamin B12 (cyanocobalamin) in the food, the primary students may suffer from Anaemia disease which means that the primary level students may have lack of blood in the body.
- Vitamin C contains Ascorbic acid which helps to avoid the disease called Scurvy. Scurvy is the disease of bleeding gums. Lack of Vitamin C, the primary students may have problem of Scurvy.
- Lack of minerals-calcium and phosphorous in the food of children, the weakness in teeth, spinal cord, muscles spasm in the children.

- Lack of iron, building of Red Blood Cell (RBC) will be affected which may cause Anaemia.
- Lack of Iodine in the food of children, the children may suffer from Goitre. It helps to produce Thyroxin for Thyroid glands.

**1.2 Statement of the Problem**

Health is the backbone of any country. So, the development of a country depends upon the health status, economy, public awareness, educational status, physical resources of the people and country. Among those factors health status and educational status is most important, that determine the knowledge, attitude and practice about any process of developing nation. Similarly behavior of adopting healthy life style and nutritive food knowledge and its cause with effects is also determined by their levels of education awareness, socio economic status as well as availability of facilities and services. Health can't be attained by the health sector alone people should realize their responsibilities to promote own health, nutrition, sanitation, economic condition and literacy rate are the principal factors of infecting directly for improving the health of the primary students or children.

Due to the lack of Nutrition education to the people of Rural area of our country Nepal, the school going children are not able to have the nutritive food at the right time and at the right ratio. In other hand, some of the children are having more nutrients food more than their body requirement because of lack of nutrition education which causes over nutrition problem such as obesity which certainly causes of hypertension, heart related problems, diabetes, stone etc where as some of the children do not have body required nutrients food as per the necessity of body growth, development and psychological needs. So, their body weight and height significantly decrease which is called under nutrition. Due to under nutrition, school going children are compelled to have PEM diseases such as Marasmus, Kwashiorkor and anaemia, rickets, night blindness, goitre, scurvy, Beri-Beri and mal nutrition diseases from Mild stage, Moderate stage and Severe stage along with stunting and wasting children.

Micro nutrients deficiencies are widespread with almost children. Only 24% of children consume iron-rich-food, 24% of children meet a minimally acceptable diet. Periods of stagnant economic growth and political instability have contributed to acute food shortage and high rates of malnutrition, mostly affecting vulnerable

children in the hills and mountains of the mid and far western regions. A report from DHS 2016, has shown variation in the percentage of stunted and underweight children in Rural areas of Nepal which is 40% stunted and 31% underweight. There is positive association between household food consumption scores and lower prevalence of stunting, underweight and wasting. Children in a secure food household have the lowest rates of stunting (33%) while children in an insecure food household have the highest rates of stunting (49%). In addition, underweight and stunting issues are also inversely correlated to their equity possessions. Children in the lowest wealth quintile are more stunted (49%) and underweight (33%) than the children in the highest quintile (17% stunted and 12% underweight). (*http://wikipedia-Health in Nepal*)

Consequently I selected the Rural area Primary Level School Children of (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari because students of these school and surrounding people are not much concerned about the nutrition food and proper education of nutrition has not been spread over them. The parents are not emphasizing their children to have good food and balance diet. Instead of so, they are ignoring in providence of food and the children are in danger of malnutrition caused diseases. Hence, the above-mentioned particular location and schools have been selected hoping to initiate the Nutrition Importance Education towards them which may be fruitful for themselves and the physical, mental and psychological development of their children.

### 1.3 Objectives of the study

The main objective of this study was to assess the condition of Nutrition in primary level students of different schools' students. Apart from that, the specific objectives of this study as stated below:

- To identify the Nutrition status of Primary Level Students
- To find out the condition of malnutrition diseases in Primary Level Students
- To find out the level of knowledge about Nutrition in them.

### 1.4 Significance of the Study

The research is based on Cross-sectional study of Nutrition Level of Primary school of Rural in (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Mahendra Madhymaik School, Chakraghati Baraha Chhetra Ward No. - 06, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari which help to evaluate the condition of nutrition in those school children, provide the knowledge about the importance of nutrition and nutrition lack diseases. The significances of this study are listed as below:-

- This study would help to find out the nutrition status or condition of Primary school .
- This study would help to analyze the comparative study or Nutrition Level of different areas Primary school children.
- This study could be helpful to let the students know the importance of nutrition for their physical, mental and psychological development in growing ages.
- This study would assist to find out different types of mild-moderate-severe types of diseases which are caused by lack of nutrition or malnutrition diseases and its corrective measures.
- After exploring the finding of the study, the study could create a consciousness and awareness among children, parents and school members towards importance of nutrition in the child ages.

### 1.5 Delimitations of the Study

Research can't cover the whole area of the desire sectors. Every research covers specific area for the study because specific area is one of the most important characteristics of research. Every research has its own compulsion and obligation due to the lack of time and financial support. This study was delimited within the following areas.

- This research was conducted to the responses to the selected population only children of Primary Level School (ages from 4 years to 16 years).

- The study was delimited to small size therefore the findings can't be generalized as national indicator.
- This study was limited only to 125 Primary Level School students of different five schools.
- The study was based in (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari
- The major components of knowledge of nutrition, Negative impact of improper nutrition or malnutrition and nutrition lack diseases and its corrective measures have been well defined in this study.
- This study was based on first-hand information that will have been collected through the help of interview and questionnaire. The researcher took interview to the students of Primary Level School students, principal and primary level teachers to collect information data on the basis of purposive and simple random sampling method.

**1.6 Operational Definition of Key terms**

| | | |
|---|---|---|
| Cyanocobalamin | : | A type of Vitamin i.e. Vitamin B12 which causes Anaemia |
| Health | : | According to WHO, Health is a state of physical, mental and social well being and not merely absence of diseases of infirmity. |
| Knowledge | : | Information, understanding and skills gained through learning or experience. |
| Malnutrition | : | Malnutrition refers to insufficient , excessive or imbalanced consumption of nutrients by human |
| Nutrition | : | Nutrition is the scientific term of food which provides the necessary nutrients such as |

| | | |
|---|---|---|
| | | carbohydrate, proteins, vitamins, fat, minerals, water etc that supply energy for physical activity and maintaining temperature of body, helps to grow and develop our body and keep our body healthy by protecting from different kinds of diseases. |
| Oestomalacia | : | A type of bone disease which affects the bone mass of body |
| PEM | : | The disease which is caused by lack of Protein and Energy Malnutrition such as Kwashiorkor. |
| Primary Level | : | Students who are studying less or equal to class five |
| Questionnaire | : | List of question which is used in the survey in order to collect data in survey. |
| Stunted | : | Less than standard height of children as per his/her age. |
| Thiamine | : | A type of Vitamin i.e. Vitamin B1 which may cause Beri-Beri disease |
| Wasted | : | Less than standard weight of children as per his/her age. |

# CHAPTER-II

# REVIEW OF LITERATURE

The chapter deals with the related literature of Nutrition Level of Primary School of Rural area. It also includes the studies which were previously done, furthermore some critical literature included in policies and programme and empirical literature which were previously conducted in the related field. Ultimately the conceptual framework also is included to show the variables related to the study.

## 2.1 Theoretical Literature

Nutrition is the study of nutrients in food, how the body uses nutrients and the relationship between diet, health and diseases. A nutrient is a source of nourishment, a component of food, for instance carbohydrate, proteins, vitamins, fat, minerals, fiber and water. Macro-nutrients are nutrients that we need in relatively large quantities and Micronutrients are nutrients that we need in relatively small quantities. Micronutrients can be further split into energy macronutrients (that provide energy) and macronutrients that do not provide energy. Carbohydrate molecules include monosaccharides (glucose, fructose, galactose), disaccharides and polysaccharides (starch). Nutritionally, polysaccharides are favored over monosaccharides because they are more complex and therefore take longer to break down and be absorbed into the bloodstream.

There are 20 amino acids-organic compounds found in nature that combine to form proteins. Some amino acids are essential, meaning they need to be consumed. Other amino acids are non-essential because the body can make them. Fats are triglycerides-three molecules of fatty acids combined with a molecule of the alcohol glycerol. Fats are required in the diet for health as they serve many functions, including lubricating joints, helping organs produce hormones, assisting in absorption of certain vitamins, reducing inflammation and preserving brain health. Improper or less intake of Carbohydrate by students of Primary Level may cause Marasmus disease - malnutrition diseases. In the same way, lack of proteins and energy giving food in children body may affect by Kwashiorkor disease (that is PEM disease). Lack of sufficient intake of water, children may suffer from dehydration and may lead to fainting and death.(By Christian Nordqvist, 01$^{st}$ September 2017)

There are many dietary minerals which are other chemical elements our bodies need for maintaining good health. Iodized salt which contains iodine helps to prevent from mental retardation thyroid gland problems and goitre disease in school going children. In the same way other minerals such as Calcium for children bone building, digestion and synthesis and proper function of blood cells, Zinc for growth of reproductive organs and regulating the Nervous and immunity system, Iron for the prevention of anemia disease etc.

Vitamins are classified as water soluble that can be dissolved in water and fat soluble which can be dissolved in fat only. In human there are four fat soluble vitamins (Vitamin-A, Vitamin-D, Vitamin-E and Vitamin-K) and nine water-soluble vitamins (eight types of Vitamin B and Vitamin C). The function or importance of different vitamins are such as Vitamin A for the prevention of Night-blindness, Vitamin B1 for the prevention of Beri-Beri disease, Vitamin B3 (Niacin) for the prevention of Pellagra disease, Vitamin B5 for the prevention of Paresthesia (numbness of skin), Vitamin B6 for the prevention of anemia and peripheral neuropathy, Vitamin B7 (biotin) for the prevention of dermatitis disease, Vitamin B12 for the prevention of megaloblastic anemia (defect in the production of RBC), Vitamin C helps to avoid from Scurvy diseases, Vitamin D helps to avoid Rickets and Osteomalacia, Vitamin K for blood clotting during accidents.

In this way, the school going children along with human beings are getting importance nutrients for their daily activities from energy yielding food, building nutrients for their physical, mental and psychological development and protecting nutrients for the protection from different disease and keep them healthy. Therefore Nutrition Level for Primary School students is very important. In other hand, socio-economic condition, education level, availability of food, Nutrition education, awareness programme through mass media etc are the factor which may differ intake of nutrition in Rural areas of our country Nepal.

### 2.2 Empirical Review

Nepal Demographic Health Survey (NDHS) reported that 41% of children under five years were stunted, 11% wasted and 29% underweight. Several factors were noted to contribute towards malnutrition for example socio-economic factors, mother's literacy, acute illness, age of child (Shah N, Determinants of Child Malnutrition in

Nepal). Social problems such as poverty, skewed land distribution and food insecurity are some of the underlying factors which cause malnutrition. World Health Organization (WHO) data from 2011 report the prevalence of moderate and severe malnutrition to be 29.8% and 8.5% respectively among boys under five in Nepal. Moderate and severe stunning among Nepali boys who are under five were reported to be 41.3% and 16.8% respectively, and that among girls were 39.5% and 15.8% respectively.

Nutritional status of children is primarily concerned with the conditions that affect children at various stages in their growth and development (Katawal, 1989). Nutritional status depends on several factors e.g. income, food production, literacy, socio-cultural, environmental sanitation etc. (Nabarro, 1984) and holds causal relationship between malnutrition, mortality, morbidity and health. (Rao, 1987).

Adequate nutrition is one of the most basic needs of any children. Thus adequate nutrition can considered as a fundamental right of every children. Children who fail to receive the adequate nutrition both in quantity and quality will suffer from the hunger and elongated hunger or insufficiency of nutrients intake leads to malnutrition. As per wikipedia, health in Nepal has found the following Nutritional Level of Rural areas of our country which are as given below:

| | Rural areas | Overall |
|---|---|---|
| Stunted | 42% | 41% |
| Wasted | 11% | 11% |
| Underweight | 30% | 29% |

(*source: http://www.wikipedia.com-health in Nepal*)

It is very important to identify the nutrition condition of our country in Rural areas where by we will enable to solve out the causes which may exist unknowingly and hidden in order to remove the malnutrition and nutrients deficiencies diseases from the such geographical area. By this way our future generation will be free from such food lack diseases and they will become the productive manpower for building our nation. We can produce the future man power without any physical infirmity and strong in mental and psychological condition.

## 2.3 Implication of the review for the study

Literature review can direct the researchers to accomplish the research work. Since the research is scientific process, related literature gives the idea to the researchers to conduct the assignment. The present work also has had the review of the related literature. Theoretical literature review has its implication to guidelines to the research. The cited theoretical review has presented. To some extent the theoretical idea to the study field. After the theoretical review it had provided the guidelines to develop the conceptual framework for the study. Similarly empirical literature review has illustrated the practice related the research area. It also has provided the idea and has shared the experience to conduct the research work in the scientific manner. So, the reviewed literature both theoretical and empirical, have the implication to carry out the research work and complete in right and scientific way.

The literature review helped in my study in following ways.

- To determine the topic of the study
- To implement various programme to the concerned field.
- To identify the related field for the study.
- To gain additional knowledge about research method.
- To compare the old findings of the study with the present ones.
- To evaluate the recent research
- To give reference to the further study related to the topic.

## 2.4 Conceptual Framework

A person's perception or view of susceptibility to the malnutrition and nutritive lack diseases combine to form his or her perceived threat which in this study referred to the Nutrition Level of Primary school student of Rural area. Because of lack of nutrition education, socio-economic, existing belief and culture, lack of health services, availability of foods, the children of Urban and Rural areas have been affected and suffered from different types of nutrition based diseases such as Marasmus, Kwashiorkor, Anemia, Night blindness, Rickets etc.

Children of school going ages have been compelled to have the problems of stunning, wasting and underweight. Improper food intake and unbalance food degrades the

physical, mental and psychological development and growth of school going children. Even though socio-economic condition and availability of nutritious food at our home, our school going children are not able to have managed nutritious food due to busy life and lack of nutrition education. However, we know the today's school going children are the great pillars of our country for its further development, our concept on nutrition have not changed which is a cause of destroying our future generation health and development. We know that we can monitor the food intake of school going children and will be able to provide nutritious food as per their age requirement to avoid such health problems of our school going children. The various variables related to the study are given below with the significant figure.

The Significant figure shows that a person suffering from malnutrition due to over eating or having food more than his/her body needs. Due to such over nutrition in the body may cause different types of Cardiovascular diseases such as heart attacked. Because of over eating, person may suffer from Diabetes and become obesity. Alternatively, if a person takes less food daily or less than body needs, may suffer from Nutrition lack diseases, gets problem in Physical growth and gets effect in Mental Development. Positively, a person who is having Balance Nutrition certainly gets Energy for Physical Activities, sound physical development, protection from diseases and Proper Mental development.

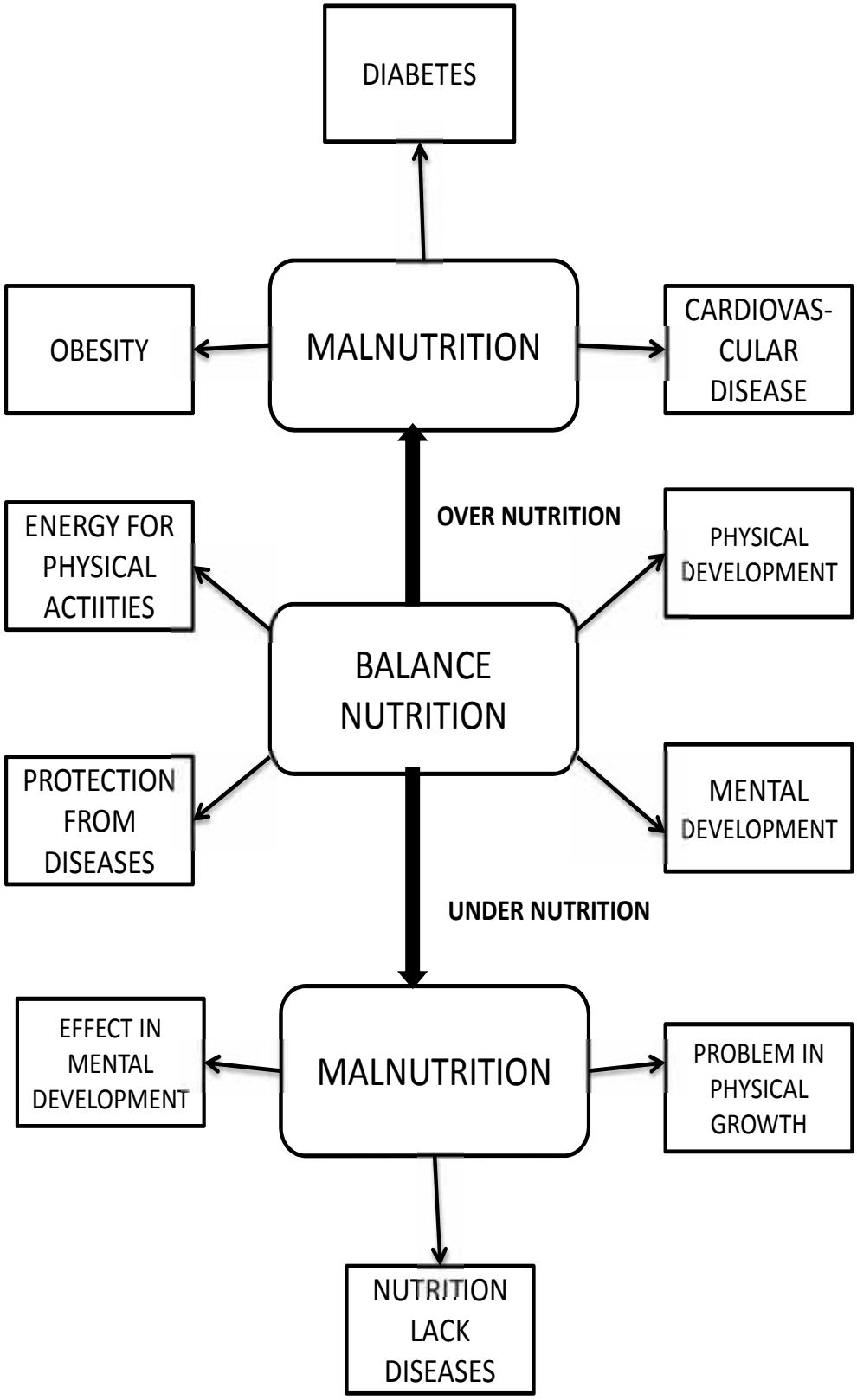



**Figure - 01: Impact of Nutrition and Malnutrition**

# CHAPTER-III

# RESEARCH METHODOLOGY

This chapter deals with research methodology of the study. It covers area like research design, population and sample, sampling procedure and sample size, tools of data collection, data collection procedure, data analysis and interpretation technique

## 3.1 Research Design

The research design is a roadmap which always facilitates and guides the researcher in the operation of research. The plan of is the overall scheme or program of the research. It includes an outline of what the investigator was done from writing the hypothesis and their operational implications to the final analysis of data. The research based on descriptive and numeral calculation. Quantitative data were collected through primary school going children.

## 3.2 Population and Sample

This study was limited in (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari as rural area schools. In this study, 25 primary students of each school of five schools altogether 125 students from five schools.

## 3.3 Sampling Procedure and Sample Size

Because of limited time and lack of financial fund, study of whole population was not possible. Therefore, 125 Primary level students of (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari will be selected with the help of Simple Random Sampling method. The Sample size will be the one hundred twenty

five (125) only altogether. The different essential data had been received by using concise questionnaire from the 125 students of above-mentioned five schools.

### 3.4 Tools of Data Collection

For the purpose of this research interview schedule and observation checklist were used as the major tools of data collection. The interview schedule developed the base on the stated objectives and with the consultation of reference materials, magazine, books, research report papers and also suggestion given by supervisor. The interview schedule will be contained with structured questions for the school going children.

Along with these tools of data collection, Anthropometric measurement such as Measurement of Height ( Waterlow's Classification )-Height according to age, Measurement of weight (Gomez's classification) - Weight according to age, Body Mass Index (BMI)-Quetelet Index Method and MUAC-Mid Upper Arm Circumference measurement with the help of Shakir's MUAC Tape tools used in school going children of Rural area.

### 3.5 Data Collection Procedure

First of all the researcher got a letter from Department of Health and Physical Education which helped to get the study area to collect the data and information. After then the researcher visited the selected School Principal of Rural Schools or visit Rural Village Development Committee and consults with secretary, local political leader and intellectual people take permission for collecting data and information. Researcher collects the data and information on the basis of objectives.

### 3.6 Data analysis and Interpretation Techniques

After accumulation filled up interview schedule, Observation check List and Anthropometric measurement, they were rechecked and verified manually to reduce errors in different headings. After that the data were analyzed and interpreted by using mathematical numerical like number, percentage with tables diagrams and figures will be used in this research. Apart from these the enclosed Anthropometric measurement will be used to find the actual condition of Nutrition Level of children in the schools of study area.

# CHAPTER - IV

# ANALYSIS AND INTERPRETATION OF RESULTS

This chapter is concerned on analysis and interpretation of study area data which are collected under my presence. In order to evaluate and analysis collected data concisely, the data collected in study area are being tabulated, presented in graph, chart etc. There are some simple statistics rules, number, percentage in arithmetical calculation have been followed to make the research work fruitful and accurate so that the thesis will be formed very effective and productive.

## 4.1 Socio-Economic Demographic Characteristics

Socio-Demographic Characteristics explains about important demographic characteristics of sample population which are taken from Study area such as variance of age group, sex composition, height and weight variance, condition of MUAC etc with respect to the religious status, educational status, occupational status of sample population.

### 4.1.1 Age and Sex Composition

Age and Sex are the basic biological characteristics of living beings. It has great influence on demographic, social, economic and political structure . Age and Sex structure of the population determines major components of Nutritional Status of Primary Level Students. Nutritional Status of students going to Primary Level may vary as per their age and sex.

Age and Sex wise population of Primary Level students under observation is very important which can presents the composition of sex ratio in the field of study. Study of age and sex wise population assists us to know the actual condition of study in terms of different sex with different age groups. In this research, the primary level students who are in the age of five years to the age of sixteen as found in the study area had been in analysis process.

Therefore, the Nutritional condition of students can be noticed as per age and sex composition which can be implemented to find out the actual nutrition status in the study area.

**Table -01 : Age and Sex wise population of Primary Level Students**

| Variable | Sex | | | | Total | |
|---|---|---|---|---|---|---|
| Age Group | Boy | | Girl | | Number | Percent |
| | Number | Percent | Number | Percent | | |
| 5 Years | 3 | 5.172414 | 7 | 10.44776 | 10 | 8 |
| 6 Years | 2 | 3.448276 | 11 | 16.41791 | 13 | 10.4 |
| 7 Years | 12 | 20.68966 | 4 | 5.970149 | 16 | 12.8 |
| 8 Years | 8 | 13.7931 | 4 | 5.970149 | 12 | 9.6 |
| 9 Years | 7 | 12.06897 | 14 | 20.89552 | 21 | 16.8 |
| 10 Years | 6 | 10.34483 | 9 | 13.43284 | 15 | 12 |
| 11 Years | 11 | 18.96552 | 10 | 14.92537 | 21 | 16.8 |
| 12 Years | 6 | 10.34483 | 6 | 8.955224 | 12 | 9.6 |
| 13 Years | 2 | 3.448276 | 0 | 0 | 2 | 1.6 |
| 14 Years | 0 | 0 | 1 | 1.492537 | 1 | 0.8 |
| 15 Years | 1 | 1.724138 | 0 | 0 | 1 | 0.8 |
| 16 Years | 0 | 0 | 1 | 1.492537 | 1 | 0.8 |
| **Total** | **58** | **100** | **67** | **100** | **125** | **100** |

Table No. 01 Age and Sex wise population of Primary Level Students of Study area reflects the clear picture of male (boy) and female (girl) condition. The total number of boys which are carried on my research was 58 in number whereas the total number of girls which are under research was 67. The total number of Primary Level Students which are taken from five Schools which are (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya,

Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06, Sunsari is 125. Out of total sample population, the percentage of boy was 46.4 Percent and the percentage of girl was 53.6 Percentage. The highest percentage of population for boy students which is 20 percentage from age group 7 years where as the lowest percentage of population for boy which is 1.7 percentage from age group 11 years. In the same way, the highest percentage of population for girl students which is 21 percentage from age groups 9 years where as the lowest percentage of population for girl which is 1.49 percentage from age group 14 years. The highest percentage of population is 16.8 percentage from age group 9 years and 11 years and the lowest percentage of population is 0.8 percentage from age group 14 years.

Sex Ratio is the ratio of number of male per 100 female. If the sex ratio is more than 100 means male number is greater than female number. Consequently if the sex ratio is less than 100 means female number is greater than male number. As per 2001 census, the national sex ratio was 99.38 and according to Census 2011, the ratio of Nepal was 94.16. The overall sex ratio which has been carried out in my study is 86.56.

### 4.1.2 Religious Composition of Study Area

As we know that our country Nepal is secular country. There are different type of religion followed by different people of our country. The religion is also an important factor to analyze the demographic and social characteristics of population in terms of Nutrition condition. It has great impaction on the life style and quality of life of people. The Religious Composition of Study Area is found on the basis of respondents which is as given in Pie-Chart.

**Figure-02: Religious Composition of Study Area**

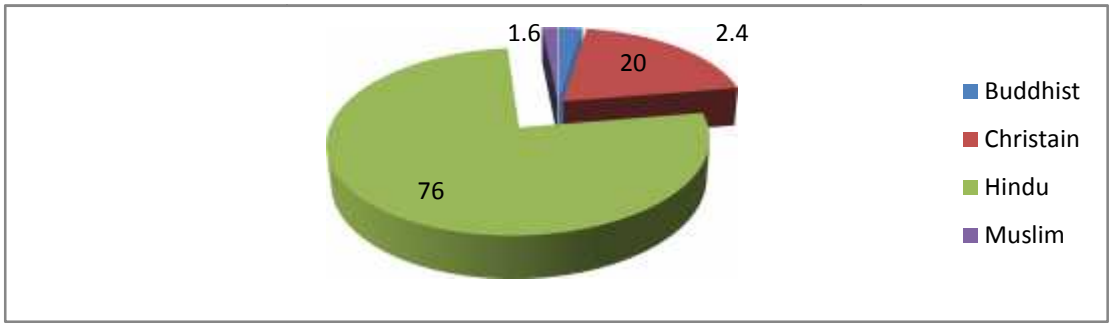


**Table - 02: Composition of Religion in study area**

| SN. | Religion | Qty | Percentage |
|---|---|---|---|
| 01 | Hindu | 95 | 76 |
| 02. | Christian | 25 | 20 |
| 03. | Buddhist | 03 | 2.4 |
| 04. | Muslim | 02 | 1.6 |
| | **Total** | **100** | **100%** |

The Table No. 02 clearly shows the Religious Composition of Study Area or five primary level students. Hindus is most followed religion in the Study Area which is 76 percentage, Second most followed religion stands from Christian which is 20 percent, Third place is secured by Buddhist which is 2.4 percent and the last religion is followed by Muslim which is 1.6 percentage only.

### 4.1.3 Educational Status of Parents

Education is the most important factor for human beings. Because of education, people will be conscious about doing their daily activities. Education provides the knowledge about all the activities. In this concern, Educational status of parents is very influence with the nutrition input in the children and himself or herself. Education helps to person to be more conscious and his or her family for more improvement in physical, mental, social and emotional status. A family with good education qualification can maintain the nutritious food and high priority in daily food.

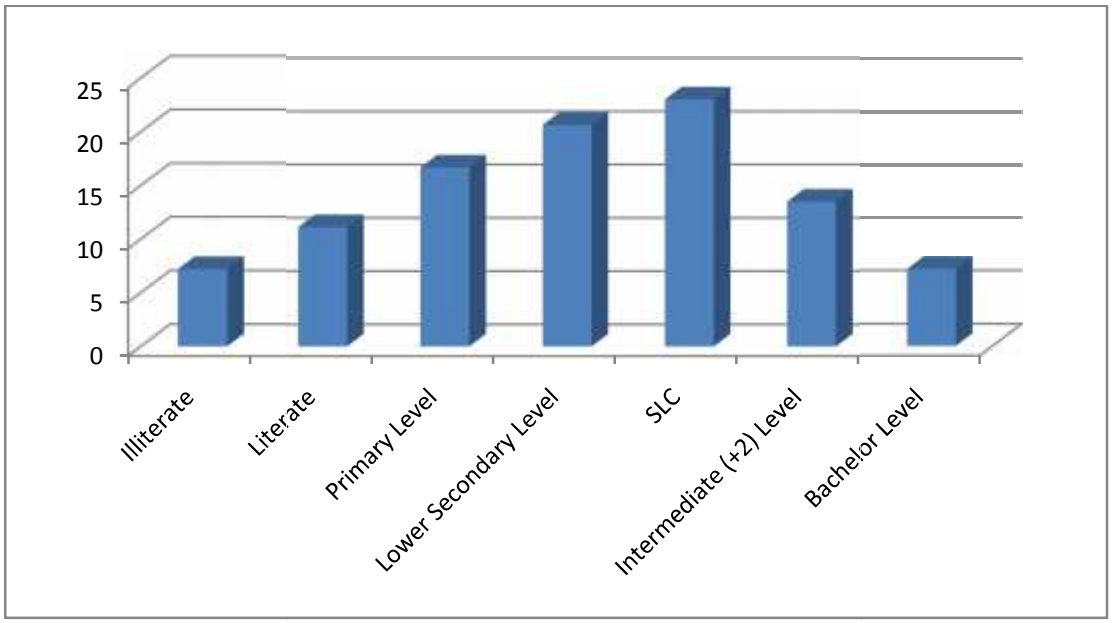
**Table - 03: Literacy and Educational Status of Parents**

| SN. | Educational Attainment | Qty | Percentage |
|---|---|---|---|
| 1 | Illiterate | 9 | 7.2 |
| 2 | Literate | 14 | 11.2 |
| 3 | Primary Level | 21 | 16.8 |
| 4 | Lower Secondary Level | 26 | 20.8 |
| 5 | SLC | 29 | 23.2 |
| 6 | Intermediate (+2) Level | 17 | 13.6 |
| 7 | Bachelor Level | 9 | 7.2 |
| | **Total** | **125** | **100** |

In the above presented Table reflects the clear information about the Educational Attainment of Parents of Primary Level students of my study area. It shows that the lowest percentage of study area is illiterate. It does mean that there is only 7.2 percentage parents are illiterate. The highest percentage of educational attainment is SLC which is 23.2 percentage. In the same way, the just literate percentage is 11.2 percentage, educational attainment up to Primary Level is 16.8 percentage, educational attainment up to Lower secondary Level is 20.8 percentage, educational attainment up to Intermediate (+2) level is 13.6 percentage and educational attainment up to Bachelor Level is 7.2 percentage.

The Bar Graph given below also shows the condition of educational attainment of parents of five school primary level students that are my study area.

**Figure - 03: Literacy and Educational Status of parents**




### 4.1.4 Occupational Status of Parents

Occupation means the profession of the people. Occupation is the most important factor of economic status of people. The development of country and Quality of Life depend on the occupation of people. Most of countries which are developed depend on occupation of Industrial, Service and Business etc. As far as Nepal concern, Nepal is an agricultural based country where maximum percentage of people depend on agro based occupation. It means that most people of our country still depend on agriculture

occupation. Occupation of people depend on their education attainment. Many empirical studies have shown that the people who are engaged in services, business and industrial work are having higher education attainment.

Occupation plays vital role enriching of nutrition to the people. People who are having good occupation are able to earn good money which they can use to purchase and facilitate their family with nutritious food. Good occupation holder people are having basic requirement of life and able to procure family, personal, society and country's needs. Therefore, it can be said that occupation certainly affect the social, mental, physical and spiritual health condition. Occupation which can't provide the financial support to people, he/she and his/her family will not be able to have nutritive food.

**Table - 4: Occupational Status of Parents**

| SN. | Occupation | Qty | Percentage |
|---|---|---|---|
| 1 | Agriculture | 54 | 43.2 |
| 2 | Business | 13 | 10.4 |
| 3 | Foreign Employment | 20 | 16 |
| 4 | Industry | 11 | 8.8 |
| 5 | Labour | 14 | 11.2 |
| 6 | Service | 13 | 10.4 |
| | **TOTAL** | **125** | **100** |

With reference of above Table No. 04 concerning Occupational Status of Parents, There are six categories of occupation namely agriculture, business, foreign employment, industry, labor and service etc. As our country is agricultural country, 54% population of study area depend on agriculture where as 10.4% people are engaged in business, 16% people are out of country for foreign employment, 8.8% people are working in industrial base occupation, 11.2% are working as labor where as 10.4% people are engaged in service. In Summary, occupation status of parents of

study area is accounted the maximum people follow the agriculture which is 43.2% and the lowest people follow the industrial based work 8.8%.

### 4.1.5 Caste Composition of Study Area

Nepal is composed of different caste, ethnicity, religion, culture and language. Because of variance in social practice, system, tradition and culture due to caste, the people of particular caste will have the traditional habit of taking food or nutrition. So, Caste composition has the vital role in nutrition of our primary level students. The demographic condition of study area has been shown in the below Table which is self explanative.

**Table - 5: Ethnicity Composition in the Study Area**

| SN. | Caste | Boy | Percentage | Girl | Percentage | Total | Percentage |
|---|---|---|---|---|---|---|---|
| 1 | Brahmin | 15 | 25.862069 | 12 | 17.910448 | 27 | 21.6 |
| 2 | Chhetri | 6 | 10.3448276 | 15 | 22.38806 | 21 | 16.8 |
| 3 | Bishkarma | 6 | 10.3448276 | 5 | 7.4626866 | 11 | 8.8 |
| 4 | Bhujel | 2 | 3.44827586 | 2 | 2.9850746 | 4 | 3.2 |
| 5 | Majhi | 4 | 6.89655172 | 5 | 7.4626866 | 9 | 7.2 |
| 6 | Bansi | 1 | 1.72413793 | 0 | 0 | 1 | 0.8 |
| 7 | Chaudhary | 1 | 1.72413793 | 2 | 2.9850746 | 3 | 2.4 |
| 8 | Darji | 0 | 0 | 2 | 2.9850746 | 2 | 1.6 |
| 9 | Das | 0 | 0 | 2 | 2.9850746 | 2 | 1.6 |
| 10 | Gadal | 0 | 0 | 2 | 2.9850746 | 2 | 1.6 |
| 11 | Gahatraj | 1 | 1.72413793 | 1 | 1.4925373 | 2 | 1.6 |
| 12 | Giri | 1 | 1.72413793 | 0 | 0 | 1 | 0.8 |
| 13 | Jimi | 1 | 1.72413793 | 0 | 0 | 1 | 0.8 |
| 14 | Khan | 0 | 0 | 1 | 1.4925373 | 1 | 0.8 |
| 15 | Limbu | 0 | 0 | 2 | 2.9850746 | 2 | 1.6 |
| 16 | Magar | 2 | 3.44827586 | 3 | 4.4776119 | 5 | 4 |
| 17 | Pariyar | 3 | 5.17241379 | 2 | 2.9850746 | 5 | 4 |
| 18 | Rai | 4 | 6.89655172 | 4 | 5.9701493 | 8 | 6.4 |
| 19 | Sedak | 0 | 0 | 1 | 1.4925373 | 1 | 0.8 |
| 20 | Shah | 3 | 5.17241379 | 0 | 0 | 3 | 2.4 |
| 21 | Sharma | 0 | 0 | 1 | 1.4925373 | 1 | 0.8 |
| 22 | Shrestha | 5 | 8.62068966 | 2 | 2.9850746 | 7 | 5.6 |
| 23 | Sunuwar | 1 | 1.72413793 | 0 | 0 | 1 | 0.8 |
| 24 | Tamang | 2 | 3.44827586 | 1 | 1.4925373 | 3 | 2.4 |
| 25 | Yadav | 0 | 0 | 2 | 2.9850746 | 2 | 1.6 |
| | | **58** | **100** | **67** | **100** | **125** | **100** |

On the basis of Caste Composition Table No. 05 which shows the concise condition of caste, the highest percentage of population of study area is Brahmin which is 21.6% and Second highest percentage of population of study area is Chhetri which is 16.8%, the third highest percentage of population of study area is Bishakarma which is 8.8%, the fourth highest percentage of population of study area is Majhi which is 7.2% and the fifth highest percentage of population of study area is Rai which is 6.4% Where as the lowest percentage of population of study area are Bansi, Jimi, Giri, Khan etc.

### 4.1.6 Family Structure of Study Area

Family structure is one of the cause of nutrition disorder. In our country, most of the people are living as joint family in rural area where as most of families have been living as nuclear family in the urban area due to the housing problem, food problem and busy life of them.

**Table - 06: Family Structure in the Study Area**

| SN. | Joint Family | Percentage | Nuclear Family | Percentage | Total Percentage |
|---|---|---|---|---|---|
| 1. | 108 | 86.4 | 17 | 13.6 | 100% |

Table No. 06 shows the people living in the study area are preferring to live in joint family because the study area is also regarded as village or rural area. Only 13.6% percentage of family are residing as Nuclear family but the maximum percentage which is 86.4 percentage of family are residing as joint family.

### 4.2 Nutritional Disorders and Health Condition

Nutritional disorders refer the improper supplement of food which is not composed of essential nutrients and micro nutrients in the right amount or right proportion as per ages of human beings. If the person is not able to have the right proportion of nutrition, he/she will be suffering from mal nutrition diseases. Therefore, it is very important to have the good knowledge of Nutrition and disorders of Nutrition. In terms of growing children of primary level students, Nutrition disorder may cause problem in health which suffer from different types of mal nutritive diseases.

### 4.2.1 Diseases caused by Nutritional Disorders/ Malnutrition

Due to the deficiency of Fat in the body of primary students, they may suffer from phrynodema if they have less amount of fat in body. There are different types of vitamins from water soluble and fat soluble which are important for our body and its deficiency in our food may cause different types of diseases which mentioned as below:

- Lack of Vitamin A in our food, primary students and people may suffer from Night Blindness and decrease in immunity power.
- Lack of Vitamin D in the food of primary students, they will suffer from Rickets in children and Oestomalacia in young and adult.
- Lack of Vitamin K in the food of primary students, the clotting of blood during incident will be affected and the primary students may become faint and die due to more bleeding during accident. It may affect the digestive and nervous system of children.
- Lack of Vitamin B1(Thiamine) in the food of primary students, they will suffer from the disease called Beri-Beri in which primary students may get the problems in Peripheral Nervous System, digestion and affect the swollen heart.
- Lack of Vitamin B2 (Riboflavin) in the food, the primary students may have the problem in vision, swollen eyes and continuous tears in eyes along with obstacle in physical health development.
- Vitamin C contains Ascorbic acid which helps to avoid the disease called Scurvy. Scurvy is the disease of bleeding gums. Lack of Vitamin C, the primary students may have problem of Scurvy.
- Lack of minerals-calcium and phosphorous in the food of children, the weakness in teeth, spinal cord, muscles spasm in the children.
- Lack of iron, building of Red Blood Cell (RBC) will be affected which may cause Anaemia.
- Lack of Iodine in the food of children, the children may suffer from Goitre. It helps to produce Thyroxin for Thyroid glands.

(*Source: Fundamental of Public Health, Quest Publication*)

### 4.2.2 Participation in Immunization Programme

Immunization is the process of vaccination for the children to protect from various type of infection, diseases and enhance the antibody in the body of children especially for primary level students of school. There are different types of vaccines which have been in practice with in the period of 18 month from the time of birth.

**Table - 07: Knowledge and Practice about Immunization/Vaccine in Study Area**

| Status | Boys | Percentage | Girl | Percentage | Total No. | Total Percentage |
|---|---|---|---|---|---|---|
| Yes | 58 | 46.4 | 67 | 53.6 | 125 | 100 |
| No | 0 | 0 | 0 | 0 | 0 | 0 |

Table No. 07 clearly shows that 100% of boys and girls of study area have got Immunization/vaccine in my study area which also reflects that the parents are well known about important of Vaccine and Immunization practice in the study area is very effective too. It also tries to carry our attention that the Immunization facilities in the study area also easily available.

### 4.2.3 Participation in Vitamin "A" capsules and worm infestation

In order to eradicate the diseases caused by lack of Vitamin "A" in the children under five years and for de-worming in the body of children under five years, the government of Nepal is managing the distribution of Vitamin "A" capsule and worm infestation medicine time to time. The primary level students which are under five years in my study area have been taking vaccines time to time which shows that they and their parents are very conscious about it.

**Table - 08: Participation in Vitamin "A" Capsule and Worm infestation**

| Status | Boys | Percentage | Girl | Percentage | No. | Total % |
|---|---|---|---|---|---|---|
| Yes | 58 | 46.4 | 67 | 53.6 | 125 | 100 |
| No | 0 | 0 | 0 | 0 | 0 | 0 |

### 4.2.4 Nature of Tiffin/Snack in the school

Snacks which is taken in the school during tiffin or break time in the school has important role in the development of primary level students' physical, mental and psychological growth. So, types of snacks which had been bringing by study area primary level students had been observed and tabulated as below:

**Table - 09: Nature of Snack (Junk or Homemade)**

| SN. | Name of School | With Junk Snack | % | With Home made Snack | % | Without Snack | % | Total |
|---|---|---|---|---|---|---|---|---|
| 01. | Shree Mahendra Madhyamik Bidhyalaya | 18 | 72 | 3 | 12 | 4 | 16 | 25 |
| 02. | Bhanu Nimna Madhyamik Bidhayala | 15 | 60 | 3 | 12 | 7 | 28 | 25 |
| 03. | Shree Primary School | 17 | 68 | 5 | 20 | 3 | 12 | 25 |
| 04. | Basanta Ritu Madhyamik Bidhayalaya | 19 | 76 | 4 | 16 | 2 | 8 | 25 |
| 05. | Koshi Madhyamik Bidhayala | 20 | 80 | 4 | 16 | 1 | 4 | 25 |
| | Total | 89 | 71.2 | 19 | 15.2 | 17 | 13.6 | 125 |

Table No. 09 clearly shows that the primary level students of study area of five schools are having their tiffin from Junk food which is 89% and the home made food as tiffin is only 15.2% and the students without food to come to school to study area is 13.6%. Out of five school, primary students of Koshi Madhyamik Bidhayalaya is the most junk food user as tifin and primary level students of Bhanu Nimna Madhayamik Bidhyala are least junk food user.

### 4.2.5 Nutrition status in Morning Breakfast

Morning breakfast is important factor which certainly affects the Nutritional Intake of human beings. Moreover, the primary level students are in rapid growing age in terms of physical, mental and psychological. Therefore, the research on the morning breakfast is essential for the Nutrition Status of children.

**Table - 10: Morning Breakfast status of study area**

| Breakfast | Girl Qty | % | Boy Qty | % | Total | % |
|---|---|---|---|---|---|---|
| Plain tea without milk | 5 | 7.46 | 7 | 12 | 12 | 9.6 |
| Milk tea only | 8 | 11.94 | 5 | 8.6 | 13 | 10.4 |
| Bread/Biscuit | 34 | 50.74 | 28 | 48.27 | 62 | 49.6 |
| Beaten rice | 3 | 4.47 | 2 | 3.44 | 5 | 4 |
| Others | 5 | 7.46 | 7 | 12 | 12 | 9.6 |
| Nothing | 12 | 17.91 | 9 | 15.51 | 21 | 16.8 |
| **Total** | **67** | **100** | **58** | **100** | **125** | **100** |

Above presented Table No. 10 shows that the maximum percentage of primary level students of study area are having good breakfast in the morning which is 49.6% and the lowest percentage of breakfast only beaten rice is 4%. It is also seemed that the children who are not having daily breakfast at home is 16.8% which is really endanger for their health.

### 4.2.6 Lunch and Dinner status of Study Area

Lunch and Dinner are very important for the human being. It is the main source of energy to carry out the cells, tissues, organs and body parts to be active whole day. It also contains different essential nutrients along with micro nutrients. If there is disorder in lunch intake, the primary level students will be more affected as this age requires more energy giving food, protecting food and body building food. In the study area, the students of primary level students are having lunch and dinner every day. The parents are concerned and financial condition is found sound in the study area. So, the primary level students of study area are able to have lunch and dinner.

**Table - 11: Lunch and Dinner taking status in Study Area**

| Description | Boy | Boy% | Girl | Girl % | Total | Total % |
|---|---|---|---|---|---|---|
| Lunch | 58 | 100 | 67 | 100 | 125 | 100 |
| Dinner | 58 | 100 | 67 | 100 | 125 | 100 |

Table No. 11 shows that the primary level students of the study area are having good lunch and dinner at their home before they come to school to study. 100 percentage of children are having lunch food at home which is good sign of enrichment of nutrition for their body.

### 4.2.7 Use of pre-cooked food from hotel/restaurant

However the food prepared by hotel/restaurant are tasty and delicious, the food quality, preservation, preparation and using of adulteration in food make the food unhealthy for our body. So, it is recommended to have home- made food instead of hotel food. Home-made food is free from any kinds of additives, adulteration and they are fresh.

**Table - 12: Usage of Pre-cooked food in the study area**

| Description | Student Quantity | Percentage |
|---|---|---|
| Once a week | 0 | 0 |
| Once a month | 0 | 0 |
| Twice a month | 0 | 0 |
| Usually | 0 | 0 |
| Seldom | 15 | 12 |
| Never | 110 | 88 |
| **Total** | **125** | **100** |

The table presents that the primary level of students studying in five schools of study area are preferring pre-cooked food of hotel and restaurant. Most percentage that is 88% students reported that they never use the hotel or restaurant food. Instead only 12% primary level students seldom use the hotel or restaurant food. It is the good sign of nutrition.

### 4.2.8 Preference to the dish (Junk food or Home-made food)

Now-a-days most of people are habit of taking fast or packed or junk food as they are made tasty by use of excessive use of salt, sugar, fat and attractive by using additives. But they are bad for our body which may cause different types of diseases in our body. We should discourage of taking junk food habit of our children.

**Table - 13: Best dish preference in the study area**

| Description | Student Quantity | Percentage |
|---|---|---|
| Junk Food/Packed Food | 96 | 76.8 |
| Home Made Food | 29 | 23.2 |
| **Total** | **125** | **100** |

Table No. 13 clearly shows that the primary level students of study area are found to prefer the junk or packed food as their best dish or food as other children do. 76.8% of primary level students are informed that their best dish or food is junk food where as only 23.2% primary level students said that their best dish or food is own home food.

### 4.2.9 Minor Health Problem Solution

Because of air-borne diseases, water-borne diseases such as headache, worm infestation, diarrhoea, the children are getting sick which directly affects the physical, mental and psychological growth. Therefore it is better to evaluate and analysis the such health problem solution on time in order to minimize the further problem.

**Table - 14: Status of Measures to solve the minor health problem**

| Description | Student Quantity | Percentage |
|---|---|---|
| Rest at home | 17 | 13.6 |
| Seek Medical help from Clinic | 84 | 67.2 |
| Seek help from Traditional Healer | 24 | 19.2 |
| **Total** | **125** | **100** |

Table No. 14 presents that the 67.2% primary level students of study area are getting medical treatment from available Clinic, health post where as 13.6% students are just

only taking rest at home till they get well. 19.2% of primary students are depending on Traditional healer and Dhami Jaghri

### 4.2.10 Exercise and Playing Activities

Exercise and Playing activities help to increase the physical activities in the children which help to maintain the good health by digesting intake food and synthesis of food from which necessary nutrients to be taken by our body and unnecessary and harmful substances will be removed in the form of sweating.

**Table - 15: Status of Exercise and Playing Activities in the study area**

| Playing activities Status | Boys | Percentage | Girl | Percentage | Total No. | Total Percentage |
|---|---|---|---|---|---|---|
| Yes | 58 | 46.4 | 67 | 53.6 | 125 | 100 |
| No | 0 | 0 | 0 | 0 | 0 | 0 |

Table No. 15 shows that all the primary level students are playing efficiently at home and at school. 100% of primary level students are involved in playing activities daily which is very positive sign for the physical development of them whereby they can get good health also.

## 4.3 Anthropometric Measurement

Knowledge of nutrition and diseases which may cause from malnutrition is not sufficient to avoid mal nutrition problems and its diseases. We should know the condition and level of mal nutrition in scale by means of different measurement. In order to find out the level of mal nutrition and condition of nutrition, there are numerous phenomena and process have been developed by different people time to time and such process, formula and standard value index been used which can be known as Anthropometric Measurement.

Anthropometric Measurement is the best and most effective method of assessing nutritional condition of children. In this method, with the help of physical characteristics of children such as height, weight, Mid Upper Arm Circumference

(MUAC), Body Mass Index (BMI), the physical growth and level of physical development is determined and condition of nutrition.

### 4.3.1 Measurement of Height for Percentage of Height according to age and sex (Waterlow's Classification)

Measurement of Height for Percentage of Height according to age and sex which is known as Waterlow's Classification is one of the best process of measuring the status of nutrition in human beings. The process is being used widely in the field of human nutrition measurement. In this process, actual height should be taken with help of measuring tape that should be compared in the age and sex of concerned student or children.

With the help of Waterlow's classification, we can assess the condition of nutrition of the children. In this measurement, height of children should be taken with the help of wooden length board and the height will be compared with respect to standard height as per age and sex. With the help of given below formula, we can evaluate the Percentage of height according to age where by Standard percentage value will be compared.

Percentage of height according to age = Actual Height of children/Standard height as per sex and age X 100%

**Table - 16: Nutrition Status on the basis of Height as per sex and age**

| Percentage Value | Nutritional Status (Interpretation) | Boys | | Girls | | Total | |
|---|---|---|---|---|---|---|---|
| | | Qty | % | Qty | % | Qty | % |
| Above 90% | Normal | 33 | 56.897 | 60 | 89.552 | 93 | 74.4 |
| 80% - 90% | Moderate Stunted | 21 | 36.207 | 6 | 8.9552 | 27 | 21.6 |
| 70% - 80% | Acute Stunted | 4 | 6.8966 | 1 | 1.4925 | 5 | 4 |
| Below 70% | Severe Stunted | | 0 | | 0 | 0 | 0 |
| | **Total** | **58** | **100** | **67** | **100** | **125** | **100** |

**Figure - 04: Bar Graph Presentation of Waterlow's Classification**

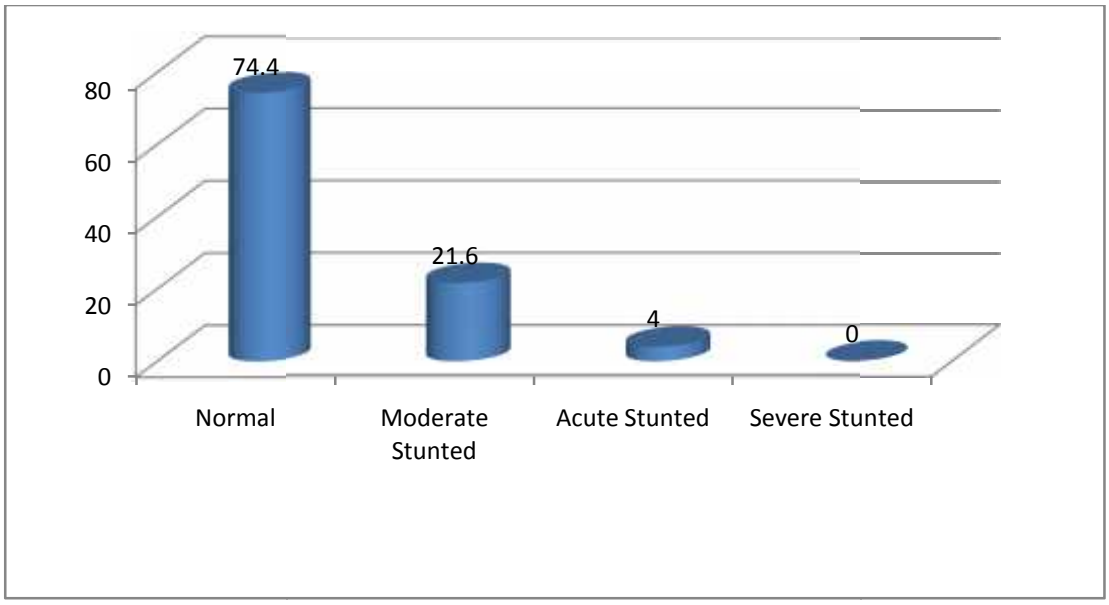



Table No. - 16 and Figure No. 04 reflects the actual Nutrition condition of primary level students of five school which are under my study area. As per the actual height taken from five school primary students of class one to class five, the highest percentage of students are in Normal Nutritional Status which is almost 74.4% where as 21.6% percentage of primary students are in Moderate Stunted condition of Nutrition and 4% primary students from five schools are in Acute Stunted Nutrition condition but good result is that there is 0% Severe Stunted in the study area.

### 4.3.2 Measurement of Weight for Percentage of Weight according to age and sex (Gomez's Classification)

It is very essential to have the weight of body according to age and sex of human being. We can assess the condition of mal nutrition from Normal to Severe Malnutrition by measuring the weight of body. In birth, the height of infant should be approximately 40cm and weight should be approximately 2.5 kg.

Gomez's Classification is on the basis of weight as per age and sex of human being. Weight of children will be compared with Standard weight as per sex and age so that the Nutrition condition in children can be found easily.

Percentage of weight according to age = Actual Weight of children/Standard weight as per sex and age X 100%

**Table - 17: Nutrition Status on the basis of weight as per age and sex**

| Percentage Value | Nutritional Status (Interpretation) | Boys | | Girls | | Total | |
|---|---|---|---|---|---|---|---|
| | | Qty | % | Qty | % | Qty | % |
| Above 90% | Normal | 40 | 68.97 | 60 | 89.55 | 100 | 80 |
| 75% - 89% | Mild Malnutrition | 15 | 25.86 | 5 | 7.463 | 20 | 16 |
| 60% - 74% | Moderate Malnutrition | 3 | 5.172 | 2 | 2.985 | 5 | 4 |
| Below 60% | Severe Malnutrition | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total** | **58** | **100** | **67** | **100** | **125** | **100** |

**Figure - 05: Pie-Chart representation of Nutrition Status as per weight**

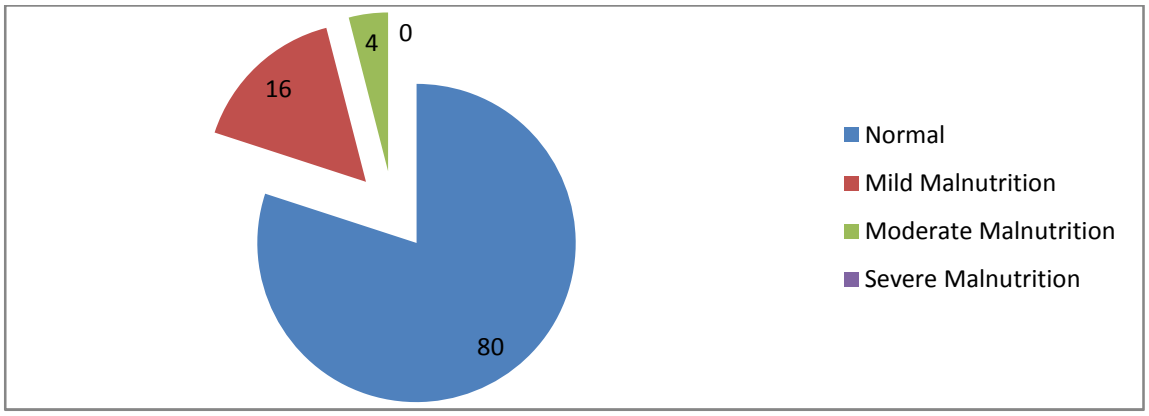



Table No. 17 shows that the maximum percentage of primary level students of study area are free mal nutrition that is 80% in total but still 16% percentage of primary level students are suffering from Mild Mal nutrition and 4% of students are having Moderate Mal nutrition. So, we should inform the parents of 16% Mild Mal nutrition and 4% Moderate Mal nutrition students of study area.

### 4.3.3 Body Mass Index (BMI)

The method of assessing nutrition level of children by the ratio of weight of children in kg and square of height of children in meter is known as Body Mass Index. Body Mass Index is also known as Quetelet Index Method as it had been used in practice by Quetelet from Belgium.

**Table - 18: Body Mass Index as per Weight and Height**

| Score | Status of BMI | Boy | | Girl | | Total | |
|---|---|---|---|---|---|---|---|
| | | Qty | % | Qty | % | Qty | % |
| < 16 | Severely Underweight | 24 | 41.38 | 26 | 38.81 | 50 | 40 |
| 16 - 19 | Underweight | 21 | 36.21 | 30 | 44.78 | 51 | 40.8 |
| 20 - 25 | Normal Weight | 13 | 22.41 | 11 | 16.42 | 24 | 19.2 |
| 26 - 30 | Over Weight | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 - 40 | Obesity | 0 | 0 | 0 | 0 | 0 | 0 |
| > 41 | Serverly Obesity | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Total** | **58** | **100** | **67** | **100** | **125** | **100** |

Table No. 18 shows that the normal weight of primary level students of study area is very less that is 19.2% where as underweight is 40.8% and severely underweight 40%. The primary level students are not possessing the weight as per their age and height.

### 4.3.4 Status of Mid Upper Arm Circumference (MUAC measurement)

Mid Upper Arm Circumference method is the best and simple method of assessing the nutrition level of children in which the measurement of Mid Upper Arm Circumference is taken by using Sakir's MUAC tape.

**Table - 19: Status of Mid Upper Arm Circumference (MUAC measurement)**

| Variable | Boy | | Girl | | Total | | Nutritional Status (Interpertation) |
|---|---|---|---|---|---|---|---|
| | Qty | % | Qty | % | Qty | % | |
| Between 12.5cm and 13.5cm | 14 | 30 | 32 | 70 | 46 | 37 | Mild to Moderate Malnutrition |
| Greater than 13.5cm | 44 | 56 | 35 | 44 | 79 | 63 | Normal |
| **Total** | **58** | **86** | **67** | **114** | **125** | **100** | |

It is clearly seen in the above-mentioned Table No. 19 that approximate 63 percentage of primary level student are in normal condition of Nutrition and only 37 percentage of primary level students are in Mild to Moderate malnutrition condition.

### 4.4 Status of Snacks in Tiffin and Food Intake

It is very necessary to identify the habit of taking food or snacks of children so that we can understand the nutrients which are being regularly taken from concerned children. With the help of food intake or snack, it is very wise to advise the children to avoid unhealthy food habit and take such nutritive food for their better health.

**Table - 20: Status of Snacks in Tiffin**

| SN. | Name of School | With Snacks | % | Without Snacks | % | Total |
|---|---|---|---|---|---|---|
| 1 | Shree Mahendra Madhyamik Bidhyalaya | 21 | 84 | 4 | 16 | 25 |
| 2 | Bhanu Nimna Madhyamik Bidhyalaya | 18 | 72 | 7 | 28 | 25 |
| 3 | Shree Primary School | 22 | 88 | 3 | 12 | 25 |
| 4 | Basanta Ritu Madhyamik Bidhyalaya | 23 | 92 | 2 | 8 | 25 |
| 5 | Koshi Madhyamik Bidhyalaya | 24 | 96 | 1 | 4 | 25 |
| | **Total** | **108** | **86** | **17** | **14** | **125** |

Table - 20: Status of Snacks in Tiffin shows the maximum primary level students are getting snack from their house for Tiffin. 86 percentage of students are having snacks where as only 14 percentage of students are not having snacks in Tiffin. Therefore, we should advise the students without snack should get the snacks from house and we should advise the parents of concerned students to send them with snacks for tiffin.

### 4.5 Summary

Nutrition is the form of intake food in which all the necessary nutrients such as carbohydrate, protein, vitamins, mineral, fat, water and micro-nutrients which help in growth of human body, providing energy for daily activities and protecting from different types of diseases and make our body healthy and strong. Consequently, mal nutrition is the condition of less or more intake of food or nutrition which may result negative impact in our body. Intake of food is important for living things including human body to be alive. More over knowledge of Nutrition is very important whereby we can have healthy and strong body and can carry out daily activities.

This research is deeply concerned about Nutritional Status of Primary Level Students of five schools which are (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06. The objectives of this study are to know the Knowledge about Nutrition exist in study area primary level students, understand the sources of nutrition and micro-nutrients and to know the nutrition lack diseases.

This study is descriptive in nature. Many literature have been reviewed directly and indirectly with nutritional status. Sampling method has been used for collecting primary data through field study. The primary level students have been selected by using simple random sampling method.

For concise collecting primary data, different questionnaires and interviews have been used to the respondents in five schools of primary level students. The collected data has been analyzed and interpreted by using Data Table, Bar Diagram, Line Graph, Pie-chart, Column Chart etc in number and percentage of data. In the research, 125 students of different five schools have been taken and there are 58 number of male students (boy) and 67 number of female (girl), 25 number of teachers and 5 number of respective headmasters.

In the case of occupational status of study area, 43.2% of population follows agriculture, 10.4% Business, Foreign employment is 16%, Industry is 8.8%, Labor 11.2% and service 10.4%. The maximum percentage of caste is 21.6% which is Brahmin and lowest percentage of caste living in the study area is 1.6% which is Yadav.

During the field study, It is found that 76% of population is Hindu religion, 20% of Christian, 2.4% Buddhist and 1.6% follows Muslim. Concerning educational attainment, population of study area from Bachelor level 7.2%, Intermediate level 13.6%, SLC 23.2%, Lower Secondary Level 20.8%, Primary Level 16.8%, Literate 11.2% and Illiterate 7.2% only.

Practice and knowledge of Immunization/vaccines in the study area is found 100% which has shown the participation of vaccine most satisfactorily. Only 4% of primary level students of study area is having problem of acute stunted.4% of primary level students of study area is having problem of moderate Mal nutrition. The causes of nutrition problem which has been found in the study area lack of knowledge about nutrition, lack of practice, poverty, education, lack of awareness program about nutrition.

**4.6 Findings**

This study of Nutritional Status of Primary Level Students has been conducted in five schools and the following facts have been found in the study area which are listed below:

- The total study population was 125, out of 125, there are five students from each class of Class - I to class - V from five different schools of primary level students.
- Percentage of male (boy) for research is 46.4% and Percentage of female (girl) is 53.6%.
- The sex ratio in the study area for study population is 86.56.
- The most dominant religion is Hindu in the study area which is 76% where as only 1.6% follows Muslim.
- The highest percentage of occupation is Agriculture which is 43..2% and the least percentage of occupation is business and service.
- The maximum percentage of study population is 21.6% Brahmin caste and lowest percentage of study population is 1.6% Yadav caste. There are Chhetri 16.8%, Bishkarma 8.8%, Majhi 7.2%, Rai 6.4%, Shrestha 5.6% etc.
- The highest Educational Attainment from Parents of study population is SLC which is 23.2%, Illiterate percentage is 7.2%, Literate 11.2%, Primary Level 16.8%, Lower Secondary Level 20.8%, Intermediate (+2 level) 13.6% and Bachelor level 7.2%.
- 100 percentage of study population have received the vaccines/immunization which shows that parents of study area are very concise.
- 86.4% students had the snack in tiffin and 13.6% of students do not have snack in tiffin.

- On the basis of height as per sex and age in Nutrition Status, 74.4 percentage students are in Normal Nutrition Condition, 21.6% students are in Moderate Stunted condition and 4 percentage students are in Acute Stunted condition.
- On the basis of weight as per sex and age in Nutrition Status, 80 percentage of students are in Normal Nutrition condition, 16 percentage of students are in Mild Malnutrition, 4 percentage of students are in Moderate Mal nutrition whereas there is no students in Severe Mal nutrition condition.
- As per MUAC Status, 63.2 percentage of study population are in Normal Nutrition and 36.8 percentage of study population are in Mild to Moderate Nutrition condition.

# CHAPTER - V

# CONCLUSION AND RECOMMENDATIONS

## 5.1 Conclusion

This study which is " Nutrition Status of Primary Level Students" is conducted in five schools of (i) Shree Mahendra Madhyamik Bidhyalaya, Titri Gachhi, Baharah Chhetra Ward No. 7 (ii) Shree Primary School, Baraha Chhetra ward No.-07, Sunsari (iii) Basanta Ritu Madhyamik Bidhyalaya, Baraha Chhetra Ward No. - 07, Sunsari (iv) Koshi Madhyamik Bidhyala, Bagh Jhoda, Baraha Chhetra Ward No. - 06, Sunsari (v) Bhanu Nimna Madhyamik Bidhyalaya, Aitabare, Baraha Chhetra Ward No. 06. in order to achieve its objectives such as to identify the Nutrition Status of Primary Level Students, to find out the condition of malnutrition diseases in Primary Level Students, to find out the level of knowledge about Nutrition in them and to provide knowledge about nutrition lack diseases.

The study had been carried in 125 primary level students which have been selected from each class of five different schools. The sex ratio in the study area is 86.56 , the highest percentage of occupation-agriculture is 43.2% and the least percentage of occupation is business and service, 100% of study area students had already taken the immunization or vaccines. In terms of Ethnicity, 21.6% highest population is Brahmin and 1.6% lowest population is Yadav. In the status of Educational Attainment, the highest percentage of Education got by the parents of study area student is SLC and the lowest percentage of Education got by parents is Bachelor Level . 7.2% people are illiterate. 86.4% of total study area population had brought the snacks for tiffin whereas 13.6% of total study area population had not brought the snacks for tiffin.

In the study area, on the basis of Height as per age and sex- 74.4% of study population is found normal nutritional status, 21.6% of study population was found Moderate Stunted and 4% of study population is found Acute Stunted. On the basis of weight as per sex and age, 80% students of study area were in Normal Nutrition Condition, 16% students of study area are in Mild Nutrition and 4% students were in Moderate Mal nutrition. As per Mid Upper Arm Circumference Measurement (MUAC), 63.2% students of study area was in Normal Nutrition Condition and 36.8% students of study area is in Mild to Moderate Nutrition Condition.

It can be concluded that the students of study area are in good condition of Nutrition. Some of students of study area had been affected by mal nutrition that was very less percentage as compared to good condition of nutrition. The causes of effects of mal nutrition in the students of the study area were poverty of parents, lack of nutritive education of parents, lack of nutrition based awareness program in the study area.

## 5.2 Recommendations

After the primary data been taken, data had been analyzed under the observation of population found in study area, the following recommendation have been noticed and listed under different sector.

### 5.2.1 Recommendations for Policy Level

- Nutrition topic should be involved or arranged in curriculum of Primary Level to upper level in Education.
- We should conduct effective and result-oriented awareness program on Nutrition in mass media.
- We can encourage parents and students to participate in Nutrition Program and its implication on human body.
- We should plan and execute the effective strategies on nutritional enhancement.

### 5.2.2 Recommendations for Practice

- It is recommended that the school should arrange lunch or tiffin facilities program to reduce mal nutrition in students.
- The teachers must be friendly with students to share ideas about nutrition in which students can understand the importance of nutrition in their body.
- We should advise the students or parents who are suffering from mild to moderate mal nutrition for having balance diet to enrich the all necessary nutrients and micro-nutrients.
- It is recommended to School Administration and School teachers for conducting Assessment of Mal nutrition in students term wise or half yearly.
- School teachers can consult the parents and counsel the parents about nutritive food for their children.

### 5.2.3 Recommendations for Further Research

Nutrition lack diseases had been seen and noticed since very long time ago. Most of people were suffering from mal nutrition diseases such as Kwashiorkor, Marasmus, Anaemia, Goitre, Night Blindness etc in the past time and some of children are still facing the health and physical problem due to lack of nutrition or food intake. Nutrition has vital important in the development of physical, mental, psychological state of children or primary students. So, there should be different deep research in the subject of Nutrition so that we can update the effect of nutrition to our generation to generation. That's why, different issues of Nutrition Status of primary level students are necessary to carry out as further research which are as follows:

- Nutrition Education for parents and children for their physical, mental and psychological growth.
- Nutrition Status of particular area children and its impact on gender equity.
- Nutrition requirement Analysis as per age and sex of particular study area
- The effect of poverty, knowledge and practice in Nutrition of children.
- To know the condition of nutrition status in the particular area or school so that nutrition based program can be conducted by NGO, INGO or from government.
- This research can be used as the guide lines for those who is willing to conduct research on this topic.
- Different NGOs and INGOs will be benefitted from this research for implementation of Nutrition based program in the study area.
- This research finding and data can be helpful to compare the nutrition status of study area after some period of time by the different nutrition related project.

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**ANNEX-I**

# TRIBHUVAN UNIVERSITY

# FACULTY OF EDUCATION

# JANATA MULTIPLE CAMPUS

# DEPARTMENT OF HEALTH AND PHYSICAL EDUCATION

# ITAHARI, SUNSARI

## QUESTIONNAIRE

Information collected herein or questionnaire will be kept confidential and used only for the academic and Research purpose.

**PERSONAL/FAMILY DETAIL**

1. What is your Name?

.....

2. How old are you?

.....

3. In which class do you study?

.....

4. What is the name of your school?

..... .....

5. What is your father's name

.....Age:.....

6. What is your mother's name?

.....Age:.....

7. Do you have brother and sister?

Yes / No If Yes, .....brother/ ..... sister.

8. What is/are your brother/s name/s?

.....Age:.....
.....Age:.....
.....Age:.....

9. What is/are your sister/s name/s?

.....Age:.....

.....Age:.....
.....Age:.....

**DEMOGRAPHIC AND ECONOMIC CHARACTERS**

10. What does your father do?
a. Business b. Agriculture
c. Service d. Others

11. What is your father's Educational qualification?
a. Pre-primary b. Primary c. Lower Secondary
d. +2 e. Bachelor f. Above

12. What does your mother do?
a. Business b. Agriculture
c. Service d. Others e. Housewife

13. What is your mother's Educational Qualification?
a. Pre-primary/Illiterate b. Primary c. Lower Secondary
d. +2 e. Bachelor f. Above

14. What is your family type?
a. Joint b. Nuclear

15. How many members are there in your family?
a. Male: ..... b. Female: .....

**FOOD/NUTRITION INTAKE SUMMARY**

16. What time do you get up usually in the morning?
..... am

17. What time do you have your breakfast in the morning?
.....am

18. What do you take in your morning breakfast?
a. Plain tea (w/o milk) b. Milk Tea c. Bread/Biscuit d. Beaten Rice
e. Plain Rice f. Milk g. Other.....

19. What do you eat in your lunch?
a. Rice/Paddy b. Corn food c. Millet d. Pulse .....
e. Curry - i. Meat ii. Vegetable f. Water/Juice/milk f. others.....

20. What do you have in your day-breakfast?
a. Plain tea (w/o milk) b. Milk Tea c. Bread/Biscuit d. Beaten Rice
e. Plain Rice f. Others .....

21. What do you have in your dinner?
a. Rice/Paddy b. Corn food c. Millet d. Pulse .....
e. Curry - i. Meat ii. Vegetable f. Water/Juice/milk f. others.....
g. fruits

22. Do you have food prepared by hotel/restaurant some times?
a. once a week b. once a month c. twice a month d. usually
e. seldom f. never

23. Do you prefer to have hotel/restaurant food?
a. Yes b. No

24. Do you usually eat packed or junk food? Which is your preference?
a. Wai Wai b. Rum Pum c. Biscuits d. Chocolate e. Chips f. other.....

25. Which is your best dish or food?

.....

**HEALTH AND HEALTH EXAMINATION**

26. Do you have any health problem now?

.....
27. Have you taken all necessary immunization?

.....
28. Do you involve in exercise and playing activities?
.....

29. What would you do if you have headache, dysentery, worm infestation and diarrhoea?

a. Rest at home b. Seek help of medical care

c. Seek help from traditional healer c. other.....

**ASSESSMENT OF NUTRITIONAL STATUS AMONG CHILDREN**

**ANTHROPOMETRIC MEASUREMENT**

I. Measurement of Height (Waterlow's Classification)

30. The Actual measurement of Height is .....cm

31. The Standard height of children according to age and sex is .....cm

Formula,

Percentage of height according to age = Actual Height of children/Standard Height as per sex and age X 100%

| SN. | Percentage Value | Level of Nutritional Status (Interpretation) |
|---|---|---|
| 1. | Above 90% | Normal |
| 2. | 80% - 90% | Moderate Stunted |
| 3. | 70% - 80% | Acute Stunted |
| 4. | Below 70% | Severe Stunted |

32. Level of Nutritional Status of the children is.....

II. Measurement of Weight (Gomez's Classification)

33. The Actual measurement of weight is .....Kg

34. The Standard weight of children according to age and sex is .....Kg

Formula,

Percentage of weight according to age = Actual Weight of children/Standard weight as per sex and age X 100%

| SN. | Percentage Value | Level of Nutritional Status (Interpretation) |
|---|---|---|
| 1. | Above 90% | Normal |
| 2. | 75% - 89% | Mild Nutrition |
| 3. | 60% - 74% | Moderate Nutrition |
| 4. | Below 60% | Severe Nutrition |

35. Level of Nutritional status of the children is .....

III. Body Mass Index (BMI)

Formula,

BMI = Weight (in Kg.)/Height (in m)

| Scores | Status of BMI | Scores | Interpretation |
|---|---|---|---|
| **<** 16 | Severely underweight | 26 - 30 | Over weight |
| 16 - 19 | Underweight | 31 - 40 | Obesity |
| 20 - 25 | Normal weight | **>** 41 | Severely obesity |

36. The actual weight of the children is .....Kg

37. The actual height of the children is .....M

38. Level of Nutritional status of the children is .....

IV. MUAC Measurement

Mid Upper Arm Circumference (MUAC- Measurement)

| Circumference Length (cm) | Color of Tape | Nutritional Status (Interpretation) |
|---|---|---|
| **>** 13.5 | Green | Normal |
| 12.5 - 13.5 | Yellow | Mild to Moderate malnutrition |
| **<** 12.5 | Red | Severe undernutrition |

(*Source: K. Park, Social and Preventive Medicine*)

39. The length of circumference of Mid Upper Arm of the children is .....cm

40. Color of Tape appeared.....

41. Level of Nutritional status of the children is .....

Signature of Respondent: Date:

..... ..... / ..... / .....

**ANNEX-II**

**Standard Average Height and Weight of Children as per age and Sex**

| Age | Boy | | Girl | |
|---|---|---|---|---|
| | Height (cm) | Weight (Kg) | Height (cm) | Weight (Kg) |
| 6m-1yr | 75 | 8.7 | 70 | 7.4 |
| 2 Years | 80 | 9.9 | 80 | 9.7 |
| 3 Years | 85 | 10.8 | 85 | 10.8 |
| 4 Years | 90 | 12 | 90 | 11.8 |
| 5 years | 100 | 14.3 | 100 | 14.4 |
| 6 years | 110 | 17 | 105 | 15.4 |
| 7 years | 115 | 18.5 | 110 | 17 |
| 8 years | 120 | 20.2 | 115 | 18.6 |
| 9 years | 125 | 22.5 | 120 | 20.6 |
| 10 years | 130 | 24.6 | 125 | 22.6 |
| 11 years | 135 | 27.1 | 130 | 24.7 |
| 12 years | 140 | 29.5 | 135 | 28.5 |