

CHAPTER-ONE

INTRODUCTION

1.1 Background of the problem

Nepal is multilingual, multi-religious, multi-ethnic beautiful Himalayan country. It is situated between the largest country China and India. Its total area is 1,47,181 sq. km. The density of population is 157 per sq. km and total population is 2,31,51,423. It's primarily based on agriculture. We have low literacy rate (53.74 percent). GDP per capita income at US \$ 240 (CBI 2001). Eighty one percent of population are engaged in agricultural activities, but their production is sufficient only for six months. Moreover, as a land-locked and rugged topography, it has low-level of economic development and very low employment opportunity, low life expectancy at birth rate i.e. 57.5 percent chronic malnourished status of children under five years infant mortality rate i.e. 61.5 percent (CBS, 2001) and maternal mortality of 47.5 percent (Statistical Year Book of Nepal, 1999) are the major health problems.

Nepal like any other third countries has been facing various socio-economic and environmental problems because of its being land-locked and least developed country, which directly influence the health status of the children. In such countries 10 million children among five years of age, were dead in 1997. A total of 97 percent of these members are from the developing countries and the major causes of death were infectious diseases like diarrhea and pneumonia (UNICEF 1998, The State of World Children, Geneva).

The population of children under five years are 14.7 percent in total population of Nepal. The death of children under five years per year in Nepal is 99,000 (UNICEF, 1996). Such a high rate of mortality may be one of the results of inadequate balance diet and child malnutrition. The infant mortality rate was 148 per thousand live births in 1981 and at least 21 percent of children died before the age of five year and majority of these deaths were due to malnutrition (Report of the National Nutrition Co-ordination Committee, 1978).

All the available evidences show that Nepalese children are mostly suffering from various types of malnutrition. Nutrition status surveys carried out over the past decade in Nepal, have shown that a large number of children continue to suffer from various degrees of protein energy malnutrition (PEM). The latest data reveal that have been little

changes in the nutritional status of children since 1975 when the first nationwide data on nutrition became available. The national nutrition survey undertaken in 1975 observed that 50% of pre-school children under 60 months of age were underweight (weight for age). The first cycle of Nepal Multiple indicators surveillance (NMIS) carried out almost 15,000 households of the country in early 1995 found 64% children between 6 to 36 months of age to be chronically malnourished (low height for age), 49% of the children in this age group to be underweight (low weight for age) while some 6% of these children were suffering from acute malnutrition (low weight for height). Similarly, (The Family Health Survey, 1996) also reported that 48% of children under 3 years old. 55 percent of children aged 6 to 36 months were stunting chronic malnutrition and wasting acute malnutrition in 11 percent of them (Ministry of Health, 1999/2000). According to chronic malnutrition and 10 percent of such children have acute malnutrition in Nepal. Malnutrition was due to inadequate breast feeding. Lack of mother's education and supplementary nutrient foods. Good nutrition is very important in achieving normal growing both physical and mental and plays positive role in the maintenance of good health throughout the life of children. Nutritional well being is a production of the development of societies and that it should be key objective of progress in human development.

Morang is one of the six districts of Koshi zone lying in eastern development region of Nepal. The boundary of this district, Jhapa is in the east, Sunsasri district in the west, Dhankuta district to the east and India is in the south. The physical feature of this district can be divided into three parts from south to north. The northern part is hilly area, Middle part is bhawar and the plain terai lies in the southern part of this district which is the most fertile area.

There are 65 VDCs and one municipality in the districts. Among them Indrapur VDC lies in the north-west part of constituency no. 8 of Morang district. The study area is 12 km east from Itahari.

1.2 Statement of the problem

Every number of children die in due to malnutrition and this number is large in undeveloped and developing countries; especially the south Asian countries. Nutritional status of the children depends on various factors such as health knowledge and practice of mother, economic status, infectious disease, immunization etc. Among them, economic status is directly related in the determination of nutritional status of children, nutritional factors is vastly associated with physical and mental growth and development

of a child especially the children of growing age can be easily affected by malnutrition. Malnutrition is responsible not only the hindrance of growth and development but also brings simple to serious health problems and ultimately leads to death. So, it is needed to find out the nutritional status of the children and socio-economic status of the family and then solve these problems definitely. That is why, this topic was selected for the present study which is stated as "Situation Analysis on Nutritional Status of children under Five Years of age in Indrapur VDC of Morang District".

Poverty, lack of health education, geographical condition are the main causes of malnutrition mainly poor and backward ethnic /caste children are suffering from malnutrition. The child of Jhagars, Tharus, Musahars, like backward people of eastern Terai of Nepal are more malnourished than other people.

It is necessary to know the existing problems before making the survey of a particular place. It is found that the community is one of the most backward in which the miracles of science and technology of twenty first century have no effect on the people. The minor looking problems but having major effect on community health sectors like malnutrition, other health problems and educational facilities are found lacking. Hence, for the reasons with the motive of positive change for the above mentioned problems. This is carried out to find the following question answers. What the condition of nutritional status under five years children? What is the ideas of local available food materials use for the children? In what is the relationship between socio-economic status and nutritional status of the under five year children in Jhagar community?

1.3 Objectives of the Study

The study aims to carry a sociological analysis of the Jhagar children under five years of age residing in Indrapur VDC of Morang district.

The objectives of the study are as follows:

- (i) To find out the relationship between socio-economic characteristics and nutritional status.
- (ii) To determine nutritional status among the children under five years of age with the help of anthropometrics measurements.
- (iii) To make a comparison of the nutritional status between boys and girls.

1.4 Rationale of the Study

Nutrition is one of the crucial determinants of assessing health status, which shows the nutritional profiles of a community and of a country as well.

Human body itself is the product of nutrition in a sense that each food, which we eat daily diet, is assimilated in the body and used for the growth and maintenance of healthy body. Life can not exist without food but at the same time it is very important to choose the right type of food which is cooked and served under hygienic conditions and appropriate for the body.

Malnutrition has been recognized as both a cause and an effect of underdevelopment. The deficiencies in the dietary are both qualitative and quantitative. Among the poor sections of the population even the basic calorie requirement are not met. This has increased the incidence of deficiency diseases especially among the vulnerable segments of the population such as pregnant women, nursing mothers, infants and children. Nutritional assessment is particularly important in infants and children because early detection and intervention can prevent permanent disorders.

Various organizations involved in health sector are not well integrated and have poor performance as well. Important programme like immunization has not full coverage. In NDHS, 2001 Report only 60 percent has got full immunization by 12 months of age. Other programs has also nearly similar results. Difficult territory and poor socio-economic condition of the people are also responsible for unsatisfactory health condition.

Concentration should be made on such activities, which are feasible, economic and easier to the community to adopt. The costly health services today, make everyone depressed. Adopting proactive approach of awareness and finding reality is obviously fruitful. Until and unless the local people join hand to hand and participate to solve the problems, there is no reliable and sustainable way to overcome from such problems.

Rationale in Local Level

In society, food in terms of quantity is considered as sufficient. They do not pay attention in calorie need for body. There are also cultural barriers, which present the choice of food type. In Brahmin, chicken, buff and pork are restricted. Brahmin and Chhetri do not accept milk products and other liquid food from pulses from Dalits. Practices like cooking only vegetable and not including pulses, negligence on fruit

consumption and manage its availability hinder proper nutrition. By knowing their current status and trend, we can motivate them to change their certain bad practices for their own welfare.

The present study is intended to determine the nutritional status of the children under five years of age and to find out the relationship between nutritional status of the children and some important socio-economic characteristics of the household in Indrapur VDC of Morang district. Basically, one should know the benchmark of current status to improve further. These types of study can aware the community and also help to redesign program. This study may help for further similar studies.

In National Level

Such type of study can help to know the real situation in the grass root level and to make policies and plan accordingly.

In Global Level

This type of study will help to know the world community about the situation of nutrition in developing countries and make co-ordinated efforts to escape from malnutrition especially for the children.

In Academic Field

Studies from various professionals from different area can help to know the real situation from different angles and plan programs in integrated manner various views can be gathered and easy to get in-depth knowledge about the problem.

1.5 Delimitation of the Study

Study can't cover the whole area or issues so, every study has delimitation. Following are the delimitation of the study.

- (i) The study was delimited with the situation analysis on nutritional status of children under five years of age.
- (ii) The study was limited within the community of Ward No. 2 of Indrapur VDC of Morang district.
- (iii) In this study, only the children under five years of age and their parents were taken as source of data.

- (iv) Twenty five percent of the total households of mother having children under five years of age from ward no. 2 was covered the total children of the VDC.
- (v) The study was carried out among certain caste groups like Chhetri, Brahmin, Jhagar and other occupational group. So the results of the study do not represent the other ethnic groups of Nepal. However, the findings may be true to similar situations elsewhere.
- (vi) Among various standards for anthropometrics measurement, the WHO standard is selected for the present study.

1.6 Definition of Terms Used

Breast Feeding: Breast feeding is known as the mother feeding. The milk from breast to the infant / child.

Complementary Food: Complementary food is the locally prepared or manufactured food suitable in addition to breast milk or to infant formula. It is given when the feeding is insufficient to satisfy the nutritional requirement of the infant complementary food is recommended from 4 -6 months onward.

Community: A community is a group of people living together in a particular area who have organized themselves to meet common interest and problems.

Colostrums: The first secretion from the mother's breast feeding after the child is born which is rich in antibodies is called colostrums.

Households: The household is defined as a group of people related by blood, marriage or adoption that have a joint kitchen and income.

Income: The income of the family is considered as the total amount of earning (from different sources) of a group of persons in one year period.

Infant Mortality Rate: The number of children under one year whose death in a year for new born babies in that year is called as Infant Mortality Rate.

Low birth weight babies: Low birth weight babies is defined as infants born weighing less than 2500 grams in the first few hours of life account for high proportion of infant mortality.

Malnutrition: Malnutrition has been defined as a pathological state resulting from a relative or absolute deficiency or access to one or more essential nutrients.

Mid-Upper Arm circumferences: This measurement (in cm) is a more approximate way of estimating malnutrition in young children. The MUAC indicator is thought to be valid between the ages of 12 and 36 months. A value below 12.5 cm indicates severe malnutrition. A value between 12.5 and 13.5 cm indicates moderate malnutrition. A value between 13.5 and 17.5 cm indicates well nourished.

Mortality Rate: Pregnant and delivered mother whose death in a year per thousand is called MMR.

Mother Morbidity Rate: Pregnant and delivered mother whose sickness in a year per thousand is called Mother Morbidity Rate.

Nutrition: Nutrition is a dynamic process in which the food is consumed and utilized for nourishing the body.

CHAPTER- TWO

REVIEW OF THE RELATED LITERATURE

According to Collins Dictionary, malnutrition is inadequate nutrition. Some believe that malnutrition is a result of imbalance in the intake of nutrients while others say it is a clinical syndrome with typical symptoms and signs, depending upon the type of nutrients responsible for disease. Nevertheless, both over nutrition and under nutrition are considered as malnutrition.

National Nutritional Survey (1975) mentioned that 67.4 percent of the children between 6 to 59 months are affected by stunting, 69.1 percent of the children are under weight that normal and 13 percent suffer from severe malnutrition. Likewise, national multiple indicator surveillance survey (1995) shows that 63.5 percent of the children between 6 to 36 months (below 3 years) age are affected by stunting and that 6 percent of children suffer from severe malnutrition. Similarly, Nepal Micro Nutrient status Survey (1998), mentioned that 54% of the children between 6 to 59 months age group are affected by stunting, 47% of children are under weight that normal and 6.7 suffer from severe malnutrition.

A study conducted in Far-western development region of Nepal revealed seasonal relationship to the level of malnutrition. There was usually an increase in the number of malnourished children after the rainy season 56534 children of Baitadi district were assessed for nutritional level of MUAC measurement. Among them 16.92 percent of children of 12-30 months were found to be severely malnourished (In the red zone), 32.89 percent were found moderately malnourished (In the yellow zone) and only 50.19 percent of them are normally nourished (In the green zone) of the measuring tape (Subedi, 1986).

Gautam, (1996) An analytical study of Nutrition Status of Primary School of Tanahun District of unpublished Master, Thesis, T. U. stated as the Waterlow classification:

1. Shows that 62.67 and 59.19 percent of boys and girls were found normal (90+) nutritional status.
2. Weight for age of indicator (Gomez classification) of nutritional status shows that 15.67 percent and 16.55 percent school boys and girls respectively were found to be normal.
3. In first degree- 27.98 percent boys, 42.27 percent girls.

4. Second degree- 49.92 percent boys, 35.36 percent girls.

5. Third degree- 13.43 percent boys, 5.85 percent girls.

Nepal micronutrient status survey showed very high level of chronic under nutritious in all parts of Nepal. The survey was based on the measurement of 17.14 pre-school children for height for age, 17.47 for weight for age, 17.18 for weight for height and 17.45 for MUAC. The children for the study were from different age group ranging from 6 months to 59 months. The number children in the age group 3 to 4 years were 3485 and in 4 to 5 years were 3115. The survey revealed that 59.3 percent of the children in the age group 3 to 4 years were stunted whereas 45.9 percent of them were under weight. Likewise, in the same age group only 4.3 percent were found wasted by weight for height and the measurement of MUAC showed that 21.2 percent of the children were under nutrient. The survey also revealed that in the age group 4 to 5 years. 60.6 percent of the children were stunted by height for age whereas 42.6 percent of them were under weight by height for age. In the same age group, 3.3 percent of the children were found wasted by height for height and 22.8 percent of them were found under nourished by the measurement of MUAC. In all there was little difference between boys and girls in prevalence of under nutrition. It was found that 54.4 percent of boys and 47.4 percent of girls were under weight. On the other hands, the prevalence of under nutrient was found higher in the rural areas than urban areas (Nepal Micronutrient status survey, 1998).

One in every 11 children born in Nepal dies before reaching age five. Slightly more than two in three under five- deaths occur in the first year of life- infant mortality is 64 deaths per 1000 live births and child mortality is 29 deaths per 1000 live births. One in two pregnant women receives antenatal care in Nepal, with 28 percent receiving care from a doctor or nurse, midwife or auxiliary nurse midwife (NDHS, 2001).

Breastfeeding is very common in Nepal and the median duration of breastfeeding is 34 months long. Under nutrition is significant in Nepal, with one in two Nepalese children under five years of age stunted (thin for their age) and 48 percent underweight (NDHS, 2001).

A report on "Feeding Practice and Nutritional" found that most of the mothers are unknown about how to feed, what to feed and when often feed. About 67% mothers used low quality biscuits to their children's snacks way of supplementary food improper 24.5% mother feeding supplementary food before the children were four month of age. Feeding practice is very poor. It also recommended in this study that nutritional status of

children depends on various factors, immunization, and notorious food knowledge socio-economic status and so on. It stresses the major one cause in infants and child feeding practice (Chaulagain, 2002).

A study of malnutrition of under five years children found that 49% of the children were in good health status, 40% were in mid- health status. The study was based on the measurement of mid-upper arms circumference using the standard Shakier tape. It is noted that the nutritional status of the children whose family members were job holders were better than the daily waged labors children. It further stated that the nutritional status was found better in boys than in girls and the children of the age group of 0 to 12 months were found well nourished among the children of all age group while it is worst among 49-60 months age group children (Kayastha, 2002)

It is found that most of mother (33.33%) gives dhindo and gundruk to their children after weaning. Rest of 11.11% children was found still now breast feed. In the data, it is known that most of the respondent mother has not feed quality food their children. About 62.5% children have been found to be well nourished and 29.17% of children are sick, rest of 8.33% children is suffered from severe malnutrition or in serious condition on the basis of the measurement in of arm circumference in Gundu VDC, Bhaktapur.

A study on "Situation Analysis on Nutritional status of children under five years age in Magar community of Nawalparasi district" found that 19.23 (In total 52 children under five years) of children were found normal, 50% were found first degree malnourished, 26.92% were second degree malnourished and 3.85% were found third degree malnourished.

Similarly, in water low classification 36.59% children were found stuned. In the MVAC standard, 37.5% of children were seen mildly malnourished and 7.5% were severely malnourished (Bhurtel, 2006)

Shrestha, (2005) A study on "Nutritional Study status of under five years children in relation to the socio-economic status of Tamang family of Gundu of Bhaktapur district " found the following:

A study carried out in the Bishankhu Narayan VDC of Lalitpur district established that nutritional status of age group 13-24 months seemed better comparing with other age group (Bhatta, 1997).

CHAPTER-THREE

RESEARCH METHDOLOGY

3.1 Research Design:

The present is basically based on the explorative and descriptive research designs. This research explains about the socio-economic status of the parents, education, and occupation of families and after all it's effect on the nutritional status of children less than five years of age.

3.2 The population and sampling procedure:

The study site Indrapur VDC is municipality oriented village. The study area accommodates inhabitants of different caste as well as ethnicity. The study population is Indrapur VDC of Morang district. The total population of Indrapur is 26142 whereas Male 13,440 and female 12,702. The under five year's population are 1792 (census, 2001). The study was focused in Jhagar community. The Jhagars dwell in ward no 1, 2, 6 and 7 of this VDC. Within these 4 wards one ward was selected using random sampling technique. In selected ward 25% households were randomly chosen and studied for nutritional status. The status was held in ward no 2 of Indrapur VDC. The total households in the ward were 225 (village profile, 2009) and 25% of it i.e. 56 households who have children less than 5 years of age were randomly selected for study. In selection process houses without children below five years of age were replaced with other household who has it. There were 64 such children in those 56 households which can be considered as appropriate for statistical analysis and these children were studied for their nutritional status.

3.3 Data collection Tools:

Data collection tools are the main sources of collecting information. So, the selection of tools matters much. There is very difficulty in gaining the authentic information even after. In the study of the nutrition status, so, the researcher chose the related tools as follows;

MUAC tape:

It is used to find nutritional status by measuring arm circumference from one to five years of children. There are 3 major categories of nutrition. Red show wasted yellow shows border line or near to average and green shows good nutrition. This tool is commonly used in Nepal.

Interview schedule:

An interview schedule has been constructed to collect the necessary information. The schedule is divided into five groups, as follows:

- A. Socio-economic status of the family
- B. Mother food security
- C. Breast feeding practices
- D. Supplementary food
- E. Disease management and immunization

3.3.1 Validation of Tools:

After preparing the research tools the first draft was shown on to the supervisor and improved according to the supervisor's suggestion then, the tools had been administered to 56 married women at 15-49 years who have got at least a child under five years age in the another ward of Indrapur VDC as a pilot study. The research tools were modified according to the feedback obtained from results of the pilot study and suggestions provided by the supervisor.

3.4 Data collection Procedure:

In this study, two types of data are used for data collections:

1. Primary data: Primary data were collected by fieldwork which was of one month duration and made on 2067 Falgun.
2. Secondary data: Secondary data are used for describing overall socio-economic status of VDC and DDC/O. The census of Nepal, 2001 reports from CBS, village profile of Indrapur VDC, 2009 and other related reports, books are used to support the whole document.

3.5 Method of Data Analysis and Interpretation:

After collecting data/ information from various sources in raw forms, it was arranged in logical and sequential pattern. The collected data was presented in bar diagram, pie chart and pyramid form and interpreted accordingly. The data were categorized in social and economic terms. Social data were given high priority and again subdivided in education, health, horticulture, animal husbandry and so on. The study was base on manual processing due to simple nature of study.

Initially, the study areas were observed and a discussion was held among former representatives of local body (VDC), teachers and employees of government and non-government sectors. Some specific findings were made by using PRA technique and group discussion. Interview with head of household comprising due consideration from gender point of view was made. This case study comprises various methods of data collection technique.

Anthropometry provides one of the most important indicators of nutritional status of children. Anthropometrics indices were used to measure the extent and nature of malnutrition of infants and children namely weight for age, height for age and MUAC. These measurements were supplemented by saltier hanging scales steel tape and snakier tape of each child.

CHAPTER- FOUR

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction of Study Area

Morang is one of the six districts of Koshi zone lying eastern development region of Nepal. The boundary of this district, Jhapa is in the east, Sunsari district is in the west, Dhankuta district is in the north and India is in to the south. The physical features of this district can be divided into three parts from south to north. The northern part is hilly area, middle part of bhawar and the plain terai lies in the southern part of this district which is the most fertile area.

Among the 65 VDCs of Morang, Indrapur VDC is one of them. It lies in the north-west part of constituency no. 8, situated between the Kerabari, Haraicha, Belbari and Mrigauliya VDC respectively in the part of north, south, east and west.

4.2 Socio-economic Characteristics of the Indrapur VDC

In socio-economic aspect basically demographic features, educational status, Health institutions major occupation and economic pattern were included.

4.2.1 Population

Indrapur VDC is spreading 25.47 sq. kilometer. The recent census has given a total population is 26,142 of this VDC. Among them 13,440 are male and 12,702 are female.

Table1: Distribution of Population in Indrapur VDC by Ethnic -Group

S. N.	Ethnic Group	Population	Percent
1	Chhetri	5858	22.41
2	Brahmin -Hill	5788	22.14
3	Rai	1820	6.96
4	Newar	1803	6.90
5	Chaudhari	1656	6.33
6	Limbu	1058	4.25
7	Muslim	862	3.37
8	Tamang	819	3.13
9	Danuwar	802	3.07
10	Kami	731	2.80
11	Damai	554	2.12
12	Jhagar	550	2.10
13	Others	3821	14.62
	Total	267142	100

Source: Indrapur VDC (2009), Village Profile, VDC Office of Indrapur

Table:1 shows that the Chhetri and Brahmins-Hill are found dominated ethnic caste in Indrapur VDC which shares more than 45 percent population according to village profile 2066, second major ethnic caste in the VDC are Rai, Newar and Chaudhari. Other ethnic castes like Limbu, Muslim, Tamang, Danuwar, Kami, Damai and Jhagar are also significantly found in the VDC.

4.2.2 Education

There are many government and private schools and established in Indrapur VDC. According to Village Profile-2009, literary rate is 85.05%.

Table 2: Number of Educational Institute in Indrapur VDC

S. N	Types of School/Campus	Government	Private	Public
1	Campus			1
2	Higher Secondary	--	1	-
3	Secondary	2	5	--
4	Lower Secondary	1	2	--
5	Primary	7	7	--
	Total	10	15	1

Source: Village Profile, 2009

Table 2 shows that in Indrapur VDC, there is one campus, Sukuna Multiple Campus run by the public. There are 10 government and 15 private schools are trying to give quality education.

4.2.3 Health Institution

Health indicators of the VDC are not satisfactory. There are 60.98% people are used wood for cooking purpose, only 42% of the households have permanent latrines and 29.15% people are still believed wizard and the witch (Village Profile, 2066) in Indrapur VDC. There is one sub-health post. It provides services like immunization, family planning counselling, maternal and child health services and health education.

Table:3 shows that the health facilities and sub-health post, four private hospital, three private clinics and medical hall and ambulance service are 8 in number and 2 respectively. The health facilities in Indrapur area are better. There are many health centres in this village. There is relation between child health status and health institutions present in the local area. The health institutions are helpful in child health.

Table 3: Number of Health Institutions in the VDC

S. N	Types of Institutions	No.
1	Sub-Health Post	1
2	Private Hospital	4
3	Private Clinic	3
4	Medical Hall	8
5	Private Ambulance	2

Source: Village Profile, 2009

4.2.4 Economy

The east-west highway runs through almost the central part of Indrapur VDC. The VDC is municipality -oriented. The fertile land that could grow adequate quantity of crops has been finished by plotting for residential purpose. The main occupations of the inhabitants covered here are foreign jobs and business. Only a few people are involved in farming, animal farming and government jobs and others.

There are 17 rice mills, 25 furniture industries, 6 milk production and selling centre, 3 food production industries, 5 others industries, 45 saving and credit co-operative and 5 banks are catching here.

4.3 Socio-economic Characteristics of Sampled Family

In the part of socio-economic characteristics the population and occupation, educational level, types of family kitchen gardening, pattern of land ownership, horticulture, animal husbandry, milk production and source of income are included.

4.3.1 Caste/ Ethnic Group

In Indrapur VDC, majority of population is Chhetri and Brahmin. Jhagar is only 2.10% in total population of Indrapur VDC. In sampled family the distribution of castes is as follows:

Table 4 shows that the different castes live in this village and different dominated ethnic castes are also found here. Castes like Brahmin and Chhetris came here due to conflict and they migrated from different districts of Nepal. People who had gone foreign countries have come back here to their home. Among them, the number of Chhetri is large.

Table 4: Caste/ Ethnic Composition

S. N	Caste	No. of Households	Percent
1	Chhetri	22	39
2	Brahmin	20	36
3	Newar	8	14
4	Jhagar	6	11
	Total	56	100

4.3.2 Education Level/Literacy among Parents

There is a saying, "Plants are developed by cultivation, but men by education."

Education plays vital role in family health. Therefore, information was collected about literacy with both father and mother of family.

Table 5: Educational Level/ Literacy among parents

Parents of the family	Level of Education				
	Illiterate	Literate	Primary	Secondary	Above Secondary
Male	17	8	12	9	10
Female	21	17	10	5	3
Total	38	25	22	14	13

Table :6 shows that illiterate parents in the sampled family was found 34% , which is significantly low with the national average of 54% (CBS, 2005). Above data are presented as follows in figure:

4.3.3 Types of Family

In Indrapur VDC during my study there are 39 nuclear families and 17 were joint families. Total population in the sample families were 362. The family size was 6.45 which is greater than district average of 5.8. Hence, the awareness in population control seems lacking which directly affect the nutrition of the children.

Table: 6 Types of Family

Types of Family	No. of Family	Percent
Nuclear Family	39	69.5
Joint Family	17	30.5
Total	56	100

Table : 7 represents that the nuclear family seemed greater than joint family. Being few members in nuclear family, there may be high chances of getting facilities related to education, health and so on.

4.3.4 Children in the Family

The total children in the sample families were 103. The children below 5 years of age were 64 in total. The no. of families having single child in each was 17., whereas the families with 2 children were 22. Similarly, the families with 3 children and 4 children were 11 and 6 respectively.

4.3.5 Patterns of Land Ownership

Table 7: Land Ownership by Ethnic Groups

Land holding in Kattha	Chhetri		Brahmin		Newar		Jhagar		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No land	-	-	-	-	-	-	6	10.71	6	10.71
0.5 -1	3	5.35	9	16.00	-	-	-	-	12	21.21
2 - 5	6	10.71	3	5.35	2	3.37	-	-	11	19.34
6 - 10	8	14.28	5	8.92	3	5.35	-	-	16	28.57
More than 10	5	8.92	3	5.35	3	5.35	-	-	11	19.64
Total	22	39.28	20	35.71	8	14.28	6	10.71	56	100

Table:7 shows that Jhagar community have no own land. They are living in not registered land by the government.

4.3.6 Kitchen Gardening

Vegetable and fruits are the major crops or the sources of vitamins to grow for the children unde 5 years there to be fortified with vital vitamins and minerals than other age. Vitamins A is one of the most important micronutrients, essential for vision and night blindness is common Nepalesse children, which is caused by deficiency of vitamin A. Vitamin A is generally obtained from yellow coloured vegetable. During field survey, the vegetables as such found in this VDC were beans, pumpkins, tomatoes, onion, garlic. But in my sampled family due to the poverty, illiteracy and having small quantity of land no more kitchen gardening.

Figure:2 shows indicates that total sampled family of Newar caste were involved in kitchen gardening. But practice of kitchen gardening was found low in Jhagar caste.

4.3.7 Horticulture

Horticulture in this VDC is not so common. Among 56 households only 35 households practice horticulture in significant area. In this area mostly found fruits are banana, mango, litchi, guava, coconut and jackfruits.

Figure :3 shows that 37.5% of the total families have not practised horticulture, it means they are missing valuable nutritious things which can be produced locally. Only the Chhetri and Brahman families have practised horticulture. The following figure shows the actual figure of horticulture practice.

4.3.8 Animal Husbandry

Animal husbandry is being practiced since the beginning of cultivation. In ancient times cultivation habit was not developed. Animal husbandry, though in recent years, it is decreasing. It will continue because it still produces highly nutritious food (meat, egg and milk), so, most of the people are trying to develop these habits as a business.

Thirty two household possess animals. It is found that only 19 households have the milk production. Almost Jhagar families possess pigs, goats and cock/hens, but they do not use for their nutrients supplement but they sell them for cash. Due to the religious and cultural reasons, Chhetris and Brahmins do not possess pigs.

Figure :4 shows that 60 percent of total households keep cows, whereas only 6 percent of them keep buffaloes for producing milk. The equal percent of goat and pigs are kept by the respondents for meat.

4.3.9 Milk Production

Animals are kept for agricultural activities and production of milk. Among them buffaloes and cows produce milk. Among the 27 cattle possessing household, 21 households possess milk producing cattle.

Table 8: Milk Production

Production of Milk	Chhetri		Brahmin		Newar		Jhagar		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Less than 1 ltr.	-	-	-	-	-	-	-	-	-	-
1 -4 ltrs.	5	27.77	2	11.11	1	5.55	-	-	8	44.44
5 -7 ltrs.	6	33.33	4	322.22	-	-	-	-	10	55.56
7 + ltrs.	-	-	-	-	-	-	-	-	-	-
Total	11	61.10	6	33.33	1	5.55	-	-	18	100

Table :11 shows that only 18 households had milk production during study. Only 10 cattle are producing more than 5 litres of milk per day.

4.3.10 Source of Income

People are engaged in different types of occupation. Because they need money to take care of their children and provide them education. But due to the lack of new technology in their own practice they do not succeed in achieving their goals. Their ways fo farming, ,milk production, animal husbandry, horticulture are too conventional. Their source of income is not sufficient for the whole year. Nowadays some people are service holder in government / non -government office. Some are involved in foreign job. Such types of families had little improvement in economy.

Table 9: Source of Income in Sampled Family

Source of Income	Chhetri		Brahmin		Newar		Jhagar		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Below Rs. 50,000 Not sufficient	-	-	-	-	-	-	2	3.57	2	3.57
55,000-1,00,000 Sufficient for 2-3 months.							2	3.57	2	3.57
1,00,000-1,50,000 Sufficient for 6 months	2	3.57	1	1.78	1	1.78	2	3.57	6	10.71
1,50,000-2,00,000 Sufficient for whole yr.	18	32.14	15	26.78	5	8.92	-		38	67.85
2,00,000+ More than enough	2	3.57	4	7.14	2	3.57			8	14.28
Total	22	39.28	20	35.5	8	14.28	6	10.71	56	100

Table 12 shows that 46 (82.13%) of the households hold income is sufficient for the year. 2 (3.57%) households can hardly sustain for 2-3 months while 2 of them (3.57%) are very poor.

4.4 Food

Good nutrition is very important in achieving normal growth both physical and mental well being. Well nutrition is the result of combination good dietary intake and aware about food, presentation of food and practices of food.

4.4.1 Breast Feeding

Brest feeding is natural way of children's nutrition. It provides immunity to our body. It saves our body from illness on the one hand and saves money that may be spent for illness as well. Due to the breast feeding, there will be close relationship between mother and the child to continue breast feeding is to present the early conception. According to NMIS average 90% of Nepalese feed breast upto 18 months and at least half of the women in Nepal continue breast feeding to the children for 3 years. Colostrums (first milk) is very valuable for the infant. It prevents risks being malnourished and being wasted. But in the field visit, it was found that most of the mothers squeeze out colostrums.

Table10: Breast Feeding

Breast Feeding	Chhetri				Brahmin				Newar				Jhagar			
	Y	No.	N	%	Y	No.	N	%	Y	%	N	%	Y	No.	N	%
Colostrums Feeding	22	100			20		100		7	87.5	1	12.5	5	83	1	17
Breast Feeding	22	100			20	100			8	100			6	100		

Table 13 shows that the little percent of Newar and Jhagar were still found to be not using colostrums for the children. It seemed better practice in Chhetri and Brahmin.

4.4.2 Weaning Time and Additional Food

In the study area weaning time was found to be 6 months for boys and 6 months for girls. Here among 56 households only 44 households have knowledge about additional food but other 12 households practice about additional food.

4.4.3 Daily food practice besides mother's milk

The basic food for the children is mother's milk. In the child's physical and mental development mother's milk only is not be sufficient and they feed supplementary food which is called weaning food. Mostly children are feed four times a day breakfast early in the morning, which include light food, lunch is second meal fed during late morning

which is heavier than breakfast. In the daytime children are fed tiffin. Their meal in the daytime fed at the last or in the late evening they feed dinner four in meal.

Table 11: Feeding Patterns among the children

Food Practice	Food items	Chhetri	Brahmin	Newar	Jhagar
First meal	Tea/milk	8	9	1	-
	Biscuits	7	6	3	-
	egg	-	-	-	-
	Fish/ meat	-	-	-	-
	Rice	5	3	3	6
	Noodles	2	2	1	-
Total		22	20	8	6
Second Meal	Tea/milk				
	Biscuits				
	egg				
	Fish/ meat				
	Rice	22	20	8	6
	Noodles				
Total		22	20	8	6
Third Meal	Tea/milk	2	4	1	
	Biscuits	10	6	3	
	egg	3	-	1	
	Fish/ meat	-	-	-	
	Rice	5	7	3	4
	Noodles	2	3	-	2
Total		22	20	8	6
	Tea/milk				
	Biscuits				
	egg				
	Fish/ meat				
	Rice	22	20	8	6
	Noodles				
Total		22	20	8	6

The above table shows that Chhetri, Brahman and Newars feeding practice is good and balanced whereas Jhagars do not have the good feeding practice. They only feed rice to their children.

4.5 Health profile

Nutrition being the major component of health the factors affecting nutritional foods were studied. In health profiles, health practice in the community, immunization practice, age at marriage and ANC check up etc were taken as major factor during study.

4.5.1 Health Seeking Behaviour

We know that "Health is wealth" and equally "Prevention is better than cure". In each community, there are typical practices about the treatment of case of diseases. In the society, some go to see doctor, some practice Ayurvedic ways and some go to the witch doctors. Their pursuits of getting treatment depend upon their level of awareness about health. In the study period among 56 households 45 households were free from illness and other 11 households had some signs of illness of diarrhea. In this community, when they became sick or any kinds of illness their practice of treatment would be as shown in the figures. Due to lack of awareness a sizeable numbers of facilities go to treat in healers.

Figure 6 shows most of the families go to doctors for treatment.

4.5.2 Immunization

Immunization protects from specially six killer diseases. It is given specially three routes in the body like intradermal, intramuscular and oral route special vaccines developed from special diseases are BCG (protects from Tuberculosis), DPT (protects from Diphtheria, pertussis and tetanus).

Table 12: Immunization Practice

Immunization	Yes	No	
		Ignorance	Negligence
	48	6	2

Table 15 shows that among 56 households only 48 households have provided with vaccine to their children.

4.5.3 Source of Health Knowledge

In the modern age, no one can ever dream of living without communication. In the developed countries, communication means like Television, radio, newspaper and other modern inventions are widely used for not only communication purpose but also for education as well as entertainment. Information and communication has made the world a global village but in the context of Nepal, we can not expect this type of technology. Cheap means like radio, TV and to some extent of newspaper, however, create awareness about health and sanitation, female education, family planning and much more. Now, the fields of communication is growing larger and larger. Internet is the latest means of communication. We can use it through the computer. We can enter into different websites for our need of information and different kinds of entertainment. But in Nepal, most of the people have no knowledge of it. The uneducated and poor people of our country are unable to use it. Phone and mobile is another kind of source of communication. These means of communication can help to increase health status.

Figure 5 shows that among 56 households, 25, 16, 9 and 6 households were getting information through radio/TV, friends, health worker and newspaper respectively.

4.5.4 Age at Marriage and First Delivery

Marriage is a social, physical and cultural relationship between male and female. Legal provision of minimum marriage age is 20 years for a boy and 18 years for a girl. In this period men and women are ready mentally, physically as well as by education. In sampled family people were conscious about prenatal care.

Table 13: Age at Marriage and First Delivery

Age at marriage	15 -16 years		17- 18 years		19 -20 years		20 +	
	No.	%	No.	%	No.	%	No.	%
	2	3.57	24	42.85	20	35.71	10	17.85
First Delivery.	-	-	14	25	36	64.28	6	10.72

Table 16 shows that among 56 households 2 households said 15 -16 years was the appropriate age for the marriage, 24 households recommended 17 -18 years, 20

households recommended 19 -20 years and 10 households 20+. Likewise both male and female were asked about the time of first delivery and the table above illustrates what they said. First delivery is mostly found after 18 years which is still earlier for overall development of mother's body.

4.5.5 ANC Check up/ Additional food during pregnancy

The main purpose of ANC checkup is to reduce maternal mortality rate inadequate MCH (Maternal Child Health) services are the causes of insufficient nutrition, low coverage of immunization, adverse environmental exposure. So, these reason IMR (Infant Mortality Rate) may be more than 10 times higher in the least developed countries than in the developed countries. In each health facility they provide ANC check up by MCHW (Maternal Child Health Worker) they counsel about four times during ANC visit, Albendazole, TT during pregnancy, and iron tablets as well as the services of safe delivery. In this community 45 households are given additional food during pregnancy but other 11 households are not. Similarly, ANC check up was followed by 40 households out of 56. Unsafe delivery practice was also in there 30 households for delivery depend upon traditional birth assistant (TBA) or at home.

Table 14: ANC check up/ Additional food during pregnancy

Title	Yes		No		Total	
	No.	%	No.	%	No.	%
ANC check up	40	71.42	16	28.58	56	100
Additional food during pregnancy	45	80.35	11	19.65	56	64.28

Table 17 shows that both ANC check up and additional food during pregnancy are seemed satisfactory.

Table 15: Distribution of Children by sex and age

Age in Month	Chhetri		Brahmin		Newar		Jhagar	
	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
0-12 months	2	3	-	1	1	1	1	-
13 -24 month	-	4	6	2	-	2	-	2
25 -36 months	3	5	4	3	1	-	3	1
37 -48 months	7	2	1	2	2	-	-	-
49 -60 months	2	-	2	-	-	-	1	-
Total	14	14	13	8	4	3	5	3

Table 18 emphasizes that sex wise, 4 boys fall under 0 -12 months age group, 6 under 13-24 months age group, 11 under 25 -36 months 10 under 37-48 months and 5 under 49-

60 months age group. Whereas, 5 girls fall under 0-12 months, 10 under 13-24 months, 9 under 25 -36 months and 4 girls under 37- 48 months age group.

4. 5.6 Comparison of Malnutrition among Children under five years of age by Gomez Waterlow and MUAC standard.

In table 19 according to Gomez classification of nutritional status, it revealed that out of 64 children studied only 14 children (i.e 21.86%) are found normal i.e. their body weight is adequate with respect to their age, whereas, 78.14% are malnourished, i.e. their body weight is less than standard weight.

In Waterloo classification of together 28 children i.e. 43.75 percent are normal which means their height is not adequate for their age and they are stunted. It means majority of the children's height is less than their respected age in height for age criteria. Likewise, In the MUAC standard 21.82 percent are normal and 78.18 percent are malnourished. Hence, the nutritional status of children found in Gomez, Waterlow and MUAC were different.

Table 16: Prevalence of malnutrition among children under five years of age by Gomez, Waterloo and MUAC standard

Classification of Nutritional status	Normal		Malnutrition		Total	
	No	%	No	%	No	%
Gomez Classification	14	21.87	50	78.13	64	100
Waterlow Classification (a) Height for age	28	43.75	36	56.25	64	100
MUAC (12-60) months	12	21.81	43	78.19	55	100

Table 19 shows that the current study confirms some previous studies. The finding is similar that of Himali (1994) as he found 19% children are normally nourished by Gomez classification and here it is found to be 21.87%. Similarly, Nepal multiple Indicator Surveillance Health and Nutrition, 1995 of children are found moderately malnourished and 12% are severely malnourished and this study find 70.90% moderately malnourished and 7.27% severely malnourished respectively by MUAC standard. Nepalese people have no sufficient consciousness about proper nutrition. The nutritional status according to Gomez classification is given below:

4.5.7 Nutritional status of Children according to Gomez classification by age

Table 17 Nutritional status according to Gomez Classification

Age in Month	Normal		1st degree malnutrition		2nd degree malnutrition		3rd degree malnutrition		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
0-12	2	14.28	3	10	3	18.75	1	25	3	14.06
13-24	4	28.57	13	43.33	4	25	1	25	22	34.37
25 -36	4	28.57	3	10	6	37.5	1	25	14	21.87
37 -48	1	7.14	10	33.33	2	12.5	1	25	14	21.87
49 -60	3	21.42	1	3.33	1	6.25	-	-	5	7.81
Total	14	100	30	100	16	100	4	100	64	100

Table :20 shows that nutritional status according to Gomez classification by age, out of 64 children studied 14 children were found normal, 30 were found 1st degree malnutrition, 16 were found 2nd degree malnutrition and 4 were found 3rd degree malnutrition.

In the first degree malnutrition, the highest percentage (43.33%) of malnourished children falls in 13-24 months age group. In the 2nd degree malnutrition the highest percentage of malnourished children is 37.5 percent and they are from 25-26 months age group. Similarly, in 3rd degree malnutrition, 25 percent of children were malnourished in all group, except 49-60. Nutritional status of all age group was found poor. It is due to less know-how to care in early period about food habit, irregularity in breast-feeding and negligence when the child grew larger.

4.5.8 Nutritional status of children according to Waterlow classification by age

Nutritional status of children according to Waterlow classification is categorized in two one is height for age and another is weight for height.

Table:21 shows that out of 64 children only 17 boys and 10 girls were found normal i.e. their height is adequate to their age whereas 19 boys and 18 girls are found stunted i.e. their height gain is not adequate to their age.

Table :18 Nutritional status according to Waterlow classification by height for age

Age in Month	Normal				Stunted			
	Boys	%	Girls	%	Boys	%	Girls	%
0-12	3	16.64	3	30	1	5.26	2	11.11
13-24	3	16.64	3	30	3	15.78	7	38.88
25 -36	5	29.41	2	20	6	31.57	7	38.88
37 -48	4	23.52	2	20	6	31.57	2	11.11
49 -60	2	11.76	-	-	3	15.78	-	-
Total	17	100	10	100	19	100	18	100

Age group wise, higher percentage of children, 25-36 month age group was seen normal than other age group. It is possibly due to regular breast feeding and more cared. Age group 25 -36 and 37 -48 were seen more stunted both boys and girls.

4.5.9 Nutritional status of children according to MUAC standard

Table 19: Nutritional status according to MUAC standard

Age in month	Normal				Mild				Severe			
	Boys	%	Girls	%	Boys	%	Girls	%	Boys	%	Girls	%
0-12	-	-	-	-	-	-	-	-	-	-	-	-
13-24	1	14.28	1	20	6	28.57	8	42.10	1	100	1	50
25 -36	2	28.57	1	20	10	47.61	6	31.57	-	-	-	-
37 -48	3	42.85	2	40	4	19.04	3	15.78	-	-	-	-
49 -60	1	14.28	1	20	1	4.76	2	10.52	-	-	1	50
Total	7	100	5	100	21	100	19	100	1	100	2	100

Table :22 shows that out of 55 children, only 7 boys and 5 girls were found normal. 21 boys and 19 girls were found mild and 1 boy and 2 girls were found severe.

4.5.10 Nutritional Status of Children by Sex

The following table states about comparative nutritional status of boys and girls according to Gomez classification, Waterlow classification and MUAC standard by sex.

Table: 23 shows the according to Gomez classification, it is found that among the 36 boys 16.67 percent of them are normal, maximum percentage 61.11 of the boys suffered from 1st degree malnutrition, 16.67 percent were 2nd degree malnourished and 5.5 percent were 3rd degree malnourished.

Table 20: Nutritional status of Children by Sex

Classification of Nutrition	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Gomez Classification						
) Normal	2	16.67	8	28.57	14	21.87
) 1st Degree (Mild)	22	61.11	8	28.57	30	46.87
) 2nd Degree (Modernize)	6	16.67	10	35.71	16	25
) 3rd Degree (Severe)	2	5.5	2	7.14	4	6.25
Total	36	100	28	100	64	100
Waterloo Classification						
Height for Age						
) Normal	17	47.22	10	35.71	27	42.18
) Stunted	19	52.78	18	64.29	37	57.82
Total	36	100	28	100	64	100
MUAC Standard (12 -60) months)						
) Normal	7	24.14	5	19.23	12	21.81
) Mild	21	72.41	19	73.07	40	72.72
) Severe	1	3.45	2	7.70	3	5.47
Total	29	100	26	100	55	100

Among the 28 girls 28.57 percent were normally nourished, 28.57 percent of them fall under 1st degree malnutrition, 35.71 percent of children were 3rd degree malnutrition and 7.14 percent of children were 3rd degree malnutrition.

From the Waterloo classification, 47.22 percent of boys are normal whereas 35.71 percent of girls are normal. 52.78 percent and 64.29 percent of boys and girls are respectively stunted. Again, boys and found better nourished than girls.

According to MUAC standard, 24.14 percent and 19.23 percent of boys and girls are respectively found normal. Mild malnutrition is found 72.41 percent in boys and that of girls is quite high i.e. 73.07 percent. Severe malnutrition is again high in girls i.e. 7.70 percent as compared to boys i.e. 3.45 percent.

4.5.11 Nutritional status of children by ethnic group

From the Gomez classification, 21.42%, 23%, 28.57% and 12.5% of the Chhetri, Brahmin, Newar and Jhagar children were observed normally nourished.

Table 21: Nutritional status of Children by ethnic group

Classification of Nutrition	Chhetri		Brahmin		Newar		Jhagar		Total	
	No.	%	No.	%	No	%	No.	%	No.	%
Gomez Classification										
) Normal	6	21.42	5	23.80	2	28.57	1	12.5	14	21.87
) 1st Degree (Mild)	13	46.42	10	47.61	3	42.85	3	37.5	29	45.31
) 2nd Degree (Moderate)	8	28.57	6	28.57	2	28.57	2	25	18	28.12
) 3rd Degree (Severe)	1	3.57	-	-	-	-	2	25	3	4.68
Total	28	100	21	100	7	100	8	100	64	100
Waterloo Classification										
Height for Age										
) Normal	12	42.85	9	42.85	3	42.85	3	37.5	27	42.18
) Stunted	16	57.5	12	57.15	4	57.15	5	62.5	37	57.82
Total	28	100	21	100	7	100	8	100	64	100
MUAC Standard (12 -60) months										
) Normal	5	21.73	4	21.25	1	20	2	25	12	21.82
) Mild	18	78.27	14	73.68	4	80	4	50	40	72.72
) Severe	-	-	1	5.26	-	-	2	25	3	5.45
Total	23	100	19	100	5	100	8	100	55	100

Table:24 refers among them 46.42 percent of Chhetri children, 47.61 percent of Brahmin children were 1st degree malnourished while it is 42.86 percent in Newar and 37.5 percent of Jhagar children were in the category. Second degree malnutrition is same in Chhetri, Brahmin and Newar (28.57%) but in Jhagar 25 percent. The highest percentage 25 percent of 3rd degree malnutrition found in Jhagar and 3.57 percent in Chhetri.

In the Waterlow classification height for age criteria 57.5 percent Chhetri, Brahmin and Newar children were stunted. The highest percentage 67.5 percent stunted found in Jhagar.

On the basis of MUAC standard, the highest percentage of normal and severe both are found in Jhagar. The highest percentage of mild conditioned children were found in Newar children (80%).

4.5.12 Nutritional status of children according to mother's education

Table 22: Nutritional status of children according to mother's education

Classification of Nutrition	Illeterate		Literate		Primary		Secondary		Secondary +		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Gomez Classification												
) Normal	-	-	1	7.69	2	25	3	60	8	72.72	14	21.87
) 1st Degree (Mild)	18	66.67	6	46.15	3	37.5	1	20	2	18.18	30	46.87
) 2nd Degree (Moderate)	6	22.22	5	38.46	3	37.5	1	20	1	9.0	16	25
) 3rd Degree (Severe)	3	11.11	1	7.69	-	-	-	-	-	-	4	6.25
Total	27	100	13	100	8	100	5	100	11	100	64	100
Waterloo Classification												
Height for Age												
) Normal	1	4.34	4	33.33	4	57.15	6	66.67	12	92.30	27	42.18
) Stunted	22	96.66	8	88.67	3	33.33	1	33.33	1	7.70	37	57.82
Total	23	100	12	100	7	100	9	100	13	100	64	100
MUAC Standard (12 -60) months												
) Normal	-	-	1	10	2	50	3	50	6	66.66	12	21.82
) Mild	24	92.30	8	80	2	50	3	50	3	33.33	40	72.72
) Severe	2	7.70	1	10	-	-	-	-	-	-	3	5.56
Total	26	100	10	100	4	100	6	100	9	100	55	100

Illiterate mother having more severe malnourished children but after literate mother having relatively few, it can be conclude that nutritional care of their children was better among educated mother than those who were less educated. Educated mother knows the good food habits, children are fed more nutritious food i.e. green vegetable, cereals, pulses, fruits etc. within time and in a balanced manner.

From the Gomez classification, highest percentage (66.67%) of mother were found illiterate children suffered from 1st degree malnutrition. Highest no. children are suffered from 2nd degree and 3rd degree malnutrition of literate and illiterate mother respectively.

In the Waterlow classification, the higher percentage 92.30% of children were found normally nourished among mothers having above secondary school education whereas majority of children were stunted in illiterate mothers.

From the MUAC standard the children of above secondary and secondary mothers hold the higher percentage of normal children. Mildly nourished and severe children are found more in the illiterate mother.

4.5.13 Nutritional status of children according to family size

Table 23: Nutritional status of children according to family size

Classification of Nutrition	Upto 4 (Small)		5 -7 (Medium)		Above 7 (large)		Total	
	No.	%	No.	%	No.	%	No.	%
Gomez Classification								
) Normal	10	50	4	21.05	-	-	14	21.87
) 1st Degree (Mild)	6	30	8	42.10	16	64	30	46.87
) 2nd Degree (Moderate)	4	20	6	31.57	6	24	16	25
) 3rd Degree (Severe)	-	-	1	5.26	3	12	4	6.25
Total	20	100	19	100	25	100	64	100
Waterloo Classification								
Height for Age								
) Normal	14	70	10	52.63	3	12	27	42.18
) Stunted	6	30	9	47.37	22	88	37	57.82
Total	20	100	19	100	25	100	64	100
MUAC Standard (12 -60) months)								
) Normal								
) Mild	6	42.85	4	26.67	2	7.69	12	21.82
) Severe	8	57.15	10	66.67	22	84.62	40	72.72
	-	-	1	6.66	2	7.69	3	5.16
Total	14	100	15	100	26	100	55	100

Table 26 indicates that the relationship between size of family and nutrition status is shown in the table 26. From Gomez classification, maximum percentage of malnourished children were found from medium sized and large sized families. Among them 42 percent of medium sized family children and 64 percent of large family children

fell under 1st degree malnutrition. Similarly, 31.57 percent of medium and 24 percent of large sized family children fell under the 2nd degree malnutrition and 5.26 percent of medium and 12 percent of large sized family children fell under 3rd degree malnutrition.

Likewise, in Waterlow classification highest percentage of stunted children were 88 percent from the large sized family while 47 percent and 30 percent were from the medium and small sized family.

Similarly, in the MUAC standard, 45 percent of small sized family children were normally nourished, 67 percent of medium sized family children were mildly malnourished and from the large sized families the children of 6.69 percent were found to be severely malnourished.

CHAPTER-FIVE

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Summary:

The study situation analysis on nutritional status of children under five years age of Indrapur VDC Morang district is based on primary data. The study was delimited in only ward No. 2 of Indrapur VDC of Morang district.

The main objective of the study was to determine nutritional status of children less than five years of age. Other objectives were comparison of sex wise nutritional status of children below five years and relationship of nutritional status and socio-economic characteristics. For the study questionnaire was developed in Nepali and mothers were interviewed, several measurements (weight, height and arm circumference) of children were taken.

According to the Gomez classification 21.87 percent (in total 64 children under five years) of children were found normal, 46.87 percent (30 out of 64) were found first degree malnourished, 25 percent (16 out of 64) were found second degree malnourished and 62.5 percent (4 out of 64) were found third degree malnourished. Similarly, in water low classification 42.18 percent children (27 out of 64) were found normal and 57.82 percent (37 out of 64) were found stunted. In the MUAC standard, 72.72 percent of children (40 out of 55) were seen mildly malnourished and 5.45 percent (3 out of 55) were severely malnourished.

The nutritional status of boy's was found better than girls from each measurement. The children of higher caste family, educated parents higher economic background had better nutritional status than the children from lower caste, illiterate parents and low income family.

5.2 Findings

- a) More than 56 percent children were between 13-36 months age groups.
- b) Literacy rate was found satisfactory.
- c) More than 82.13 household incomes are sufficient for the year.
- d) More than 69.5 percent families are Nuclear family.
- e) The Jhagar community have not own land. They are lived in not registered land by the government.

- f) 3.57 percent mother was found to be not using colostrums for the children.
- g) Health treatment was still traditional, 25 percent of the population is still curing with healers.
- h) Nutritional status of boys seemed better than girls by each classification while comparing sex-wise nutritional status.
- i) ANC checkup and additional food during pregnancy both are seemed satisfactory.
- j) Children of educated parents were found well nourished than non-educated.
- k) Immunization practice was found satisfactory.
- l) Kitchen gardening, Horticulture and animal husbandry practice were found low.
- m) The children of upper castes were found better nourished than those of so called lower castes.
- n) One third of the children were found normally nourished.

5.3 Conclusion

Children were found generally under nourished in Gornez and water low classification, which generally measured weight and height respectively. Children were also found nourished in MUAC standard, which measured arm. The nutritional status was different in the three classifications. Genetically, Nepalese people are smaller in height and weight than western people. For the Gornez and water low classification the standard were adopted from developed countries, which are not appropriate for the Nepalese children so, the result from MUAC standard is more reliable for this study. The nutritional status of children aged 13-24 months age was depicted better than other age groups possibly it was due to the breast-feeding and additional complementary food.

The comparative sex wise nutritional status of boys seemed better than girls by each classification. Chhetri and Brahmin were nutritionally better than the children of other castes. Their food habits are also different in the sense of more frequency of food supply, more consumption of hygienic and nutrition's food. Higher castes have better economic, social and political status than lower caste. Mother educational status played positive impact on the nutrient status of children. Educated parents were found aware about children's food habit, health and sanitation. Pig keeping practice nearly to house have resulted in poor sanitation especially in the Jhagar community.

The occupation of parents also played important role on the nourishment of the children. Service holder, business holder and foreign job holders children were found better nourished than other labourer class people's children. It is due to awareness about food habits especially taking food in time and maintaining hygiene. When the parents have high purchasing power, they could afford nutritious foods.

There were more malnourished children among the families with landless families. Land is one of the main resources to generate income. Shortage of adequate handholding and lack of employment opportunities to the poor might have generated malnutrition in such family.

5.4 Recommendation

To improve the nutritional status of children below five years of age, the study made the following recommendations.

Genetically, Nepalese people are smaller in height and weight than the western people. For the Gornez and Waterlow classification, the standards were adopted from developed countries, which are not appropriate for the Nepalese children. Hence, a standard for Nepalese children should be developed. Nutritional status of children above 12 months may be measured from Shakir tape (arm circumference). However children below 12 months may be measured according to weight. As malnutrition is also related to vicious cycle of poverty. So, program of poverty reduction should be more vigorously launched by proper identification of target group like using poverty mapping by government and non-government sector.

- a) The education/awareness status of parents should be promoted by literacy classes or a compulsory education. Nutrition education should be included in the curriculum of higher –level education.
- b) The nutrient program should be conducted in grass roots level. Awareness campaign should be launched about good feeding habits, emphasized on locally available foods, food storage and preservation.
- c) To uplift the lower castes, their traditional occupation should be upgraded or oriented towards professionalism by providing skill development trainings.
- d) For growing children exclusively; breast feeding is not enough after the first three months. After fourth month the child needs liquid or solid supplementary food should be added.

- e) Nutritional needs should be addressed through a co-ordinate approach involving different sectors; among them main are health, agriculture, education and local development.

5.5 Recommendations for Further Research

- a) The research is descriptive type of study. So, analytical research is necessary for research to a logical end.
- b) The research has been conducted on small community of Indrapur VDC. So. It can't reflect the detail practice of nutritional status of children under five years of age in rural area than this study area. To generalize the finding, further research should be done including all components of nutritional status of children under five years of age in large area.
- c) In Nepal, children are more affected by the ART (Acute Respiratory Tract infection), Diarrhea and water borne diseases. Similarly, sanitation among the indigenous community is poor. So, their socio-cultural practices should be closely looked at. So, these may be more fruitful for further research.

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APPENDIX –B

Standard Measurement

(a) Under Gomez classification weight for age among boys

S. N.	Age (Months)	Weight (Kg)	Standard Weight (Kg)	Weight for age%
1	12	6.5	10.91	59.57
2	12	7	10.91	64.16
3	12	8.6	10.91	78.82
4	12	6.8	10.91	62.32
5	13	8.6	10.91	78.39
6	13	8.6	10.91	78.39
7	16	8.2	11.03	74.34
8	16	8.8	11.03	78.78
9	18	8.1	11.47	70.61
10	18	8.8	11.47	76.72
11	24	10.02	12.59	81.01
12	24	10.5	12.59	83.39
13	24	10.2	12.59	81.01
14	24	9.7	12.59	77.04
15	24	10.7	12.59	84.98
16	24	10.8	12.59	85.86
17	36	11.8	14.69	80.32
18	36	13.5	14.69	91.89
19	36	11.6	14.69	78.96
20	36	13.6	14.69	92.57
21	36	13.8	14.69	93.94
22	42	13.7	15.7	87.26
23	42	13.3	15.7	84.71
24	42	12.8	19.7	81.52
25	42	13.6	15.7	86.62
26	42	9.2	15.7	58.59
27	42	13	15.7	82.80
28	48	11.5	16.01	71.83
29	48	14	16.01	87.44
30	48	13.6	16.01	84.94
31	48	13.5	16.01	84.32
32	60	17.2	18.67	92.12
33	60	17	18.67	91.05
34	60	16.5	18.67	88.37
35	60	17.2	18.67	92.12
36	60	13.5	18.67	72.30

Source: Field Work

APPENDIX –C

Standard Measurement

(a) Under Gomez classification weight for age among girls

S. N.	Age (Months)	Weight (Kg)	Standard Weight (Kg)	Weight for age%
1	7	6.9	7.7	89.61
2	7	6.6	7.7	85.71
3	7	7	7.7	90.90
4	7	7.2	7.7	93.50
5	7	5	7.7	64.93
6	18	8	10.82	73.93
7	18	9.5	10.82	87.80
8	18	9.7	10.82	89.64
9	18	9.9	10.82	91.49
10	18	6.4	10.82	53.14
11	18	10	10.82	92.42
12	18	10	10.82	92.42
13	18	9.9	10.82	92.42
14	18	9.7	10.82	91.49
15	18	7	10.82	89.64
16	36	8.4	13.93	64.69
17	36	9	13.93	60.30
18	36	12.7	13.93	64.60
19	36	8.2	13.93	91.17
20	36	9	13.93	58.86
21	36	10	13.93	64.60
22	36	10.5	13.93	71.78
23	36	10	13.93	75.37
24	36	11.3	13.93	81.11
25	48	14.5	15.96	90.85
26	48	13.2	15.96	82.70
27	48	12	15.96	75.18
28	48	11.7	15.96	73.30

Source: Field Work

APPENDIX –D

Standard Measurement

(a) Under Waterlow classification height for age among boys

S. N.	Age (Months)	Weight (Kg)	Standard Weight (Kg)	Weight for age%
1	12	70	76.1	91.98
2	12	71	76.1	93.29
3	12	65	76.1	85.41
4	12	69	76.1	90.67
5	13	70	77.15	90.73
6	16	69	77.15	89.43
7	16	66	77.15	85.54
8	18	76	80.3	94.64
9	18	70	80.3	87.17
10	18	76	80.3	94.64
11	36	89	96.5	92.22
12	36	80	96.5	82.90
13	36	81	96.5	83.93
14	36	83	96.5	86.01
15	36	95	96.5	91.19
16	36	83	96.5	86.01
17	36	88	96.5	91.19
18	36	85	96.5	88.08
19	36	81	96.5	90.15
20	36	84	96.5	87.04
21	36	92	96.5	95.33
22	42	95	99.1	95.86
23	42	86	99.1	86.78
24	42	87	99.1	87.79
25	42	88	99.1	88.79
26	42	91	99.1	91.99
27	48	89	102.9	86.49
28	48	92	102.9	89.40
29	48	99	102.9	96.20
30	48	98	102.9	95.23
31	48	90	102.9	87.46
32	60	92	109.9	83.71
33	60	98	109.9	89.17
34	60	96	109.9	87.25
35	60	101	109.9	91.90
36	60	103	109.9	93.72

Source: Field Work

APPENDIX –E

Standard Measurement

(a) Under Waterlow classification height for age among girls

S. N.	Age (Months)	Weight (Kg)	Standard Weight (Kg)	Weight for age%
1	7	61	67.6	90.23
2	7	60	67.6	88.75
3	7	60	67.6	88.75
4	7	64	67.6	94.67
5	7	65	67.6	96.29
6	18	70	80.9	86.52
7	18	73	80.9	90.23
8	18	70	80.9	86.52
9	18	72	80.9	88.99
10	18	71	80.9	87.76
11	18	76	80.9	93.94
12	18	72	80.9	88.99
13	18	73	80.9	90.23
14	18	70	80.9	86.52
15	18	70	80.9	86.52
16	36	72	95.6	75.31
17	36	74	95.6	77.40
18	36	80	95.6	83.68
19	36	84	95.6	87.86
20	36	85	95.6	88.91
21	36	88	95.6	92.05
22	36	69	95.6	72.17
23	36	85	95.6	88.91
24	36	91	95.6	95.18
25	48	92	101.6	90.55
26	48	89	101.6	87.59
27	48	91	101.6	89.56
28	48	92	101.6	90.55

Source: Field Work