Malnutrition among Under-5 children in the district

Panchkula (Haryana)

Dissertation

in

National Health Mission, Child Division Panchkula

Govt. of Haryana

(February 5-April 30, 2014)

By

Dr. Meenakshi Suman

Under the guidance of

Dr. Vinay Tripathi

Post Graduate Diploma in Hospital and Health Management

2012-2014

International Institute of Health Management Research
New Delhi

The certificate is awarded to

Dr. Meenakshi Suman

In recognition of having successfully completed her
Internship in the department of

CHILD HEALTH

and has successfully completed her Project on

"Malnutrition Among Under-5 Children in District Panchkula"

Date: 5/2/2014 – 30/4/2014

National Health Mission- Haryana

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish her all the best for future endeavors

Medical officer (Child Health)

MCH & EPI
Health
Panchkula

FEEDBACK FORM

Name of the Student: Dr. Meenakshi

Dissertation Organisation: Child Health Division
NHM - Haryana

Area of Dissertation: "Malnutrition among under-5 children in District Panchkula."

Attendance: 100% Attendence

Objectives achieved: The Nutritional status of under-5 children in terms of Anthropometry

Deliverables: The socio economic factors that hinders the nutritional status of under 5 children in the study area.
→ A project report "Malnutrition Among Under-5 children in District Panchkula.

Strengths: Good Analytical skills, Sincere & team player

Suggestions for Improvement: Need to understand the working under government setup.

Signature of the Officer-in-Charge/ Organisation Mentor (Dissertation)

Medical Officer Child Health
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Haryana, Panchkula

Date:
Place:

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Meenakshi Suman,** a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He/ She is submitting this dissertation titled **"Malnutrition Among Under-5 Children in District Panchkula"** at "National Health Mission" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management.**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Vinay Tripathi

Dr. Vinay Tripathi,

Assistant Professor,

IIHMR- New Delhi.

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

Certificate of Approval

To Whom So Ever it May Concern

The following dissertation titled "Malnutrition Among Under-5 Children in District Panchkula" is_hereby approved as a certified study in the management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of Post Graduate Diploma in Health and Hospital Management for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve an statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for the evaluation of dissertation.

Name	Signature
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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**Malnutrition Among Under-5 Children in District Panchkula**" and submitted by **Dr. Meenakshi Suman** Enrollment No. **PG/12/049** under the supervision of **Dr. Vinay Tripathi** for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from **5/2/2014. To 30/4/2014** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Meenakshi

Signature

TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Meenakshi Suman**, a student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from International Institute of Health Management Research, New Delhi has undergone internship training at **"National Health Mission" Haryana (Child Health)** from 5/2/2014 to 30/4/2014.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.The Internship is in fulfillment of the course requirements. I wish him all success in all his future endeavors.

Dr. A.K. Agarwal
Dean, Academics and Student Affairs
IIHMR, New Delhi

Dr. Vinay Tripathi,
IIHMR, New Delhi

Contents

Acknowledgement

This dissertation report is the yield of my culminating learning over not just the last three months but the course of two years as a Hospital and Health Management student. So I extend my acknowledgement to all those who have enriched this journey**.**

At first, I would like to thank Institute of Health Management Research, New Delhi where I built my foundation in management concepts. I express my gratitude to the faculty of IIHMR for their constant help to perform me better. I convey my sincere thanks to my mentor- Dr. Vinay Tripathi, for being helpful and supportive throughout the course, Dr. Dharamesh Lal for being my guide and helpful in completion of my dissertation.

I am thankful to Dr. Krishan (MO Child Health), Panchkula for his guidance and motivation that helped me completing my dissertation. This study would not have been completed without support from the staff and health workers of the district Panchkula. My sincere appreciation goes for them.

My earnest thanks to my family for being a support system and all my friends for helping me through thick and thin and making this journey smooth.

Abbreviations and Acronyms

ANC	Antenatal Care
APL	Above Poverty Line
ASHA	Accredited Social Health Activist
AWC	Anganwadi Center
BPL	Below Poverty Line
CHC	Community Health Center
CMTC	Child Malnutrition Treatment Center
DCCH	District Coordinator Child Health
GDP	Gross Domestic Product
HH	Household
HMIS	Health Management Information System
ICDS	Integrated Child Development Services
IFA	Iron and Folic Acid
IYCF	Infant and Young Child Feeding Practices
MOU	Memorandum of Understanding
MUAC	Mid Upper-Arm Circumference
MUW	Moderate Underweight
NFHS	National Family Health Survey
NRC	Nutrition Rehabilitation Center
NRHM	National Rural Health Mission
PHC	Primary Health Center
RCH	Reproductive and Child Health
SD	Standard Deviation
SPMU	State Programme Management Unit
SUW	Severely Underweight
UNICEF	United Nations Children's Fund

VHND Village Health Nutrition Day

WHO World Health Organization

List of Charts, Graphs and Tables

Executive Summary

Child Malnutrition is an important concern in developing countries. Malnutrition is an important factor contributing to illness and death among children. NFHS III revealed the picture of Malnutrition in India. Forty-eight percent under-5 children were stunted, 20 percent had wasting and 42.5 percent children were found underweight during NFHS III (2005-06). The present study was undertaken to assess the nutritional status of under-5 children and factors affecting it in blocks of district Panchkula. One hundred and fifty four under-5 children were part of the study along with their mothers. Anthropometric measures of children were taken and Mothers were interviewed through a semi structured questionnaire. Findings of the study showed that 57.14 percent under-5 children were stunted, 40.25% percent had wasting and 30.51 percent children were underweight. WHO Child Growth Standards were used to assess the nutritional status of the under-5 children. The factors contributing to malnutrition among the target population were the age of child, mother's education & employment status, feeding practices, household's monthly income. To improve the nutritional status of the children a few initiatives had been implemented by Government of Haryana. The study recommended focusing on already implemented strategies more effectively and efficiently. Complimentary feeding after 6 months should be in focus along with referral to higher malnutrition treatment centers. Regular follow-up is necessary for improving the nutritional status of the under-5 children.

Key words – Malnutrition, Anthropometric measures, Referral.

Internship Report

Job Profile

I have been engaged by the Government of Haryana to provide services under NHM (Child Health Division) as the District Coordinator Child Health at district Kurukshetra. From last two and a half months, I am working under the guidance of Dr. Suresh Dalpath (Deputy Director Child Health) at Panchkula-NHM. The District Coordinator Child Health is meant to provide overall managerial, administrative and support supervision for Child Health Programme/National Rural Health Mission to be implemented in the district through District Health Society.

Specific duties and responsibilities:

1. Monitor managerial, administrative and financial aspect of CH Programme at all facilities of the district.
2. Coordinate with other consultants of CH Programme at Central/State/District level.
3. Provide Supportive supervision of ENBCR , RI, HBPNC and IMNCI to staff nurses, ANM's and other staff who are involved in these programmes.
4. Capacity building/training of the staff.
5. Identifying the cause of delay in achieving targets of IMR (MDG Goal 4) in order to improve the situation.
6. Implementation of various schemes and initiatives taken in order to better the results of MCH/NRHM Programme.
7. Manage human resource and logistics under CH Programme with the help of District and State Authorities.
8. Regular reporting to State about status of functioning of different programs in child health.
9. Facilitate to organize regular District Health Society Meetings and documentation of follow up actions.
10. Provide regular report/feedback on Programme to the CMO and District Immunization Officer**.**

ORGANIZATION PROFIE

Name organization National health mission Panchkula, Haryana.

Address BAYS NO.55-58, SECTOR-2, PANCHKULA, HARYANA

Genesis The **National Rural Health Mission** (NRHM) is an initiative undertaken by the government of India to address the health needs of underserved rural areas. Founded in April 2005 by Indian Prime minister Manmohan Singh, the NRHM was initially tasked with addressing the health needs of 18 states that had been identified as having weak public health indicators.

The Union Cabinet vide its decision dated 1st May 2013 has approved the launch of National Urban Health Mission (NUHM) as a Sub-mission of an over-arching National Health Mission (NHM), with National Rural Health Mission (NRHM) being the other Sub-mission of National Health Mission

INDICATORS (SRS 2011)

Indicators	India	Haryana	2013-14	2014-15	State target for 12th plan 2017
Under-5	51	55	41	37	30
IMR	44	44	36	32	26
NMR				28	

Table: 1

Learning in Child Health Division

About ENBCR-

Components of essential newborn care

- Sequence of event before and after birth, both when baby is breathing normally and when baby doesn't cry
- Support health providers with simple- user friendly protocols for ENC/R at the facility
- Care at Birth- Thermal protection
    - Normal breathing
    - Mother's milk Protection from infection
- Routine Care-
    - Postnatal environment Every day care of the baby (B/F, warmth, cord care & hygiene) Looking for danger signs and giving treatment Preparation for discharge
- **Care prior to delivery-**
    - Ensure that delivery area is clean and Temperature more than 25degree C .
    - Wash hands with clean water and soap.
    - Double glove just before delivery
    - Newborn Care corner

- **Immediate Newborn Care - 1st golden minute** Drying .If after thorough drying, newborn is breathing normally.

  Establish breathing .

  - Skin to Skin contact.
  - Wrapping
  - 1 minute to 60 minutes
  - Do delayed or non-immediate cord clamping (1-3 minutes).
  - Provide support for initiation of breastfeeding .Establish breast feeding.
  - Care from 60 minutes to 6 hours of after birth.
  - Give Vitamin K prophylaxis, immunize with 0 OPV and BCG.
  - Examine the baby. Check for birth injuries, malformations or defects. Cord care. Provide additional care for a small baby or twin.
  - Post – natal discharge advice.Cord care and hygiene. Danger signs and when to come EBF and CF. Immunization.
  - **Special care.** If baby do not cry at birth. Establish breathing by PSSRR.
  - Resuscitation– emergency & immediate. Care of Low Birth Weight newborn. Dealing with feeding problems
  - Dry immediately, Provide warmth
  - Initial steps of stabilisation (clearing the airways, positioning, stimulating)
  - Ventilation, including bag-mask or bag -tube ventilation
  - Chest compressions
  - Medications or volume expansion

HBPNC (Home Based Post Natal Care)

Introduction-

- The effective interventions for reduction of the NMR component of IMR in settings with high mortality and weak health systems include outreach, family-community care, and health education to improve home-care practices.

- There is a need to address the local practices to target mothers and other family and community members in the right manner to bring effective behavior change.

- Common causes of neonatal deaths are prematurity and low birth weight (14%), infections (12%) and birth asphyxia (8%.).

- As per the DLHS-3 survey only 49.5% of mothers received a check up by a health worker within 24 hours of delivery in Haryana against 33 % in the Mewat.

Intervention-

Along with improving health facilities in the district, the Home Based Post natal Newborn Care (HBPNC) programme has been implemented by the Haryana Government. ASHA is given an incentive of Rs. 250 for making one pre-natal visit (in eight month of pregnancy) and six postnatal (on day 1,3,7,14,28 and 42) home visits. HBPNC is rolled out in all 21 districts. 11452 ASHAs trained in HBPNC.12000 ASHA drug kit supplied to districts. Salter weighing scale & thermometer are provided to train ASHAs. Procurement of weighing salter scale, digital thermometer, stop watch is in process for the newly recruited ASHAs. State has also recruited DAC,BAC,ASHA facilitator in every district to monitor ASHA activity along with existing supervisory health staff of BEE,LHV,ANM. ASHA functionalilty is determined through 10 monitorable indicators of GoI. Module 6, 7 training (upgraded HBPNC) has been started for ASHAs.

IMMUNIZATION and COLD CHAIN

.

- **Components of Program Management**

  Map of Catchment area, AVD plan, Estimation of Beneficiaries, ANM roster, Supervisory Plan, Coverage Monitoring Chart, Estimation of Logistics, Block meeting conducted with RI component.

- **Components of COLD CHAIN**

  ILR, DF, Temperature Log book, Open Vial Policy

- **Supplies and Stocks of all vaccines**

- **Immunization sessions**

- **Status of Special Care Newborn Units in Haryana**

20 SNCUs “operational” and 2 SNCUs in pipeline

Supported by network of Newborn Stabilization Units at first referral units, and newborn care corners in each “delivery-point”

In this way we received training of IMNCI by PGI, IDR, GPRS, OSCE BY JPIAGO, Training of software of HBPNC, SNCU, DHIS, IDR.

DESSERTATION REPORT

Introduction

Section 1.1 Background

The World Health Organization has stated that the poor nutrition is the most important single threat to the world's health. Malnutrition is the biggest contributor to Child Mortality. It is the underlying cause of nearly 2.6 million child deaths occurring every year. In the present study, Malnutrition has been used to refer to under nutrition.

Malnutrition continues to be a leading health concern in developing countries. The children in South Asian and Sub-Saharan African countries are the most affected in the world. India is one of the countries where nearly half of infant deaths are related to Malnutrition. According to NFHS III data 48 percent of the under-5 children are stunted, about 20 percent children have wasting and 42.5 percent children are Underweight. India has been successful in reducing poverty but eradicating hunger still continues to be a challenge.

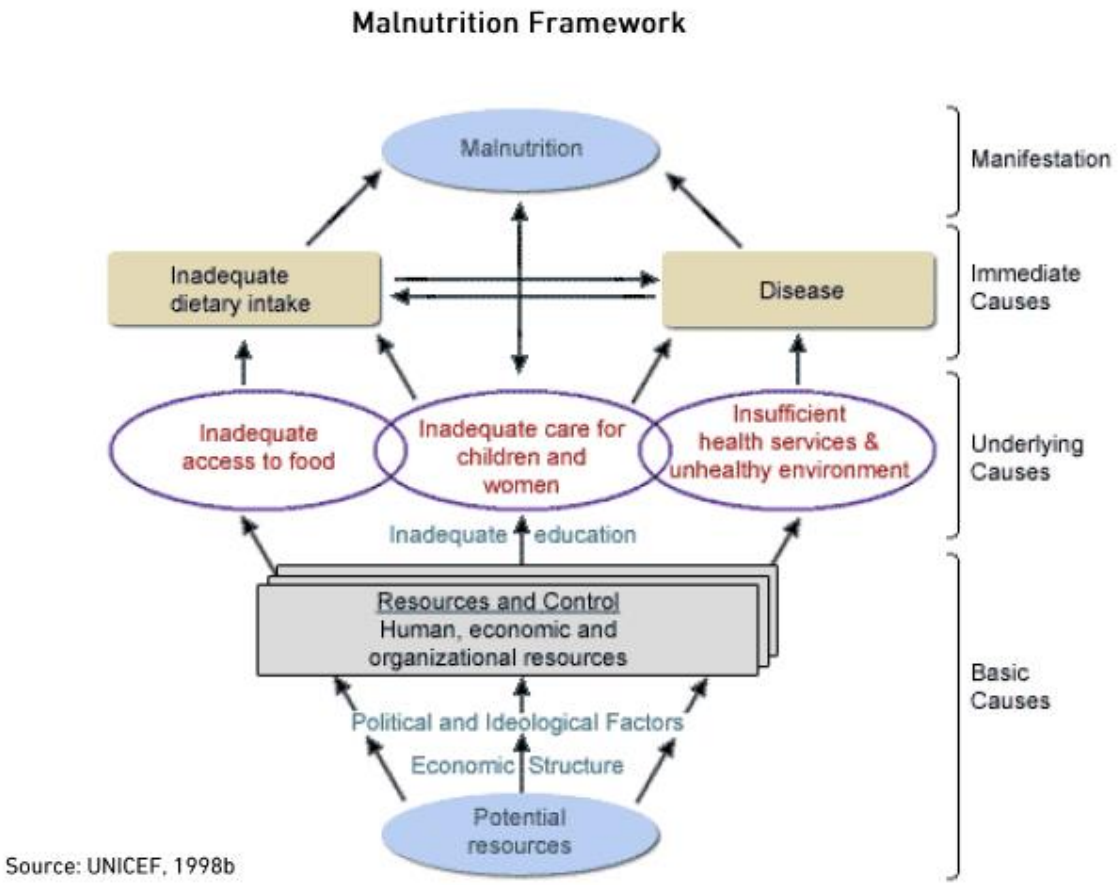
In children, Malnutrition is synonymous with growth failure. Malnourished children are shorter and have lesser height than they should have for their age. The standard indices of physical growth that describe the nutritional status of the children are:

1. **Height-for-age (Stunting)** – It indicates linear growth retardation. Children with height-for-age Z score below - 2 SD are considered short for their height and are chronically malnourished. If the Z score is below – 3 SD the child is severely malnourished.
2. **Weight-for-height (Wasting)** – This is a measure of body mass in relation to body length. Children with Z score less than -2 SD are moderately wasted and those with – 3 SD are severely malnourished. Wasting refers to inadequate nutrition in the period

immediately preceding the survey. It may be the result of inadequate food intake or recent episode of illness.

3. **Weight-for-age (Underweight)** – This is a composite index of Height-for-age and Weight-for-age. It takes into account both Acute and Chronic Malnutrition. Children whose weight-for-age is below – 2 SD are considered as Moderately Under Weight (MUW) whereas, those with - 3 SD are Severely Underweight (SUW).
4. **Mid – Upper Arm Circumference (MUAC)** – This is an index for measuring muscle wasting and loss of sub-cutaneous fat. It is independent of the age of child and is used for the age group from 6 months to 5 years. If MUAC is below 12.5 cm, it means wasting is present and if MUAC is below 11.5 cm the child is considered to be severely wasted.

   In 1991, UNICEF presented a conceptual framework to show the main reasons of Malnutrition. But these reasons may vary within regions and countries. The problem of Malnutrition can be explained as follows:



Rationale

Haryana is one of the fastest growing economies in India. Still a majority of its workforce depends on agriculture for its livelihood. Nearly 60 percent of the population in Haryana lives in rural areas. The state is well known for its reforms and good governance in the field of development but it has worst rates in terms of overall hunger and malnutrition.

According to NFHS III, 43 percent of Under-five children in the State are underweight, 46 percent are stunted and 19 percent of them suffer from wasting. There have been interventions to reduce the malnutrition among the children. The Govt. of Haryana State adopted two approaches for management of children with severe acute Malnutrition. One is

Facility Based Management and other is Community Based Management. There are NRCs for the management of malnutrition at district level.

NHRC issued notice to Haryana Govt. on severe malnutrition in children. The study had been conducted in 4 districts of Haryana that were Ambala ,Panchkula , Yamunanager and Karnal. According to the report , 37% children of these districts were found to be underweight, 42.8% suffered from stunted growth, and 17.5 % from wasting. 95% children were found anaemic in Karnal. The children with severe acute malnutrition have nine times higher risk of death than well nourished children.

Apart from high morbidity and mortality among children the cost estimation of malnutrition is very high. In India it leads to a 4% loss of GDP as per Department of Women and Child Development estimation. Also malnourished children present a bigger challenge due to the fact that they are not able to speak for themselves.

The study intends to assess the nutritional status of the under-5 children and analyze the factors contributing to poor nutritional status among them.

Review of Literature

A study done by Chiddarwar, Sonali S. in 2000 assessed the nutritional status of children below five years of age in Nagpur found that 60.6% of children were suffering from various grades of undernutrition. The prevalence of undernutrition was highest in 36-48 months group. The female children were found to be more affected (59.3%) than male (40.6%). The study revealed certain factors that affected the nutritional status of children, like, Education status of both mother & father, occupation of mother, birth order & birth weight of the child.

Another study conducted by Pellizzari, Castro A. in two blocks of Ahmedabad found that 56.8% children were either moderately or severely malnourished. It revealed three main factors as determinants of malnutrition in rural Gujarat. Age of the child, access to IFA tablets during pregnancy and having a BIMA card were the main factors affecting the nutritional status of the children in that area. Other factors included the distance from the Anganwadi Centers and access to health care facilities.

A situation analysis of acute malnutrition in Rajasthan and Madhya Pradesh by ACF in 2010 showed that Scheduled Castes and Tribal communities were the most vulnerable for undernutrition. Food insecurity in the household, lack of proper feeding practices followed by mothers and mother's illiteracy were the underlying causes of undernutrition in Rajasthan. In Madhya Pradesh, Migration was found to be a great contributing factor to malnutrition among children. Others factors included food insecurity, poor feeding practices, lack/non-use of health services.

A study undertaken by Jyoti and Rajaretnam (2000) analyzed 1992-93 NFHS data for determinants of nutritional status of young children. Analysis of the data showed that children above two years become less underweight but more and more stunted. Children born to young mothers (below 18 years), of higher birth orders (4+), and those with a birth interval of less than 2 years are at higher risk of being severely undernourished. Low birth weight babies are also at a greater risk of being severely undernourished. Improvement in the nutritional status of children in India requires improvement in the educational and nutritional status of women, better housing environment, improvement in the delivery of MCH services and strengthening of family planning services.

Scope of the study

Objectives

- To assess the nutritional status of Under-5 Children in terms of Anthropometry.
- To identify the socio-economic factors and other factors that are associated with the nutritional status of the under 5 Children in the study area.

Methodology

- Study Area: The study was conducted in the blocks of district Panchkula namely, Kalka, Raipur rani and Urban Panchkula.

- Study Design: This is a Non-interventional, Descriptive Study.

- Target Population: Under-5 Children along with their mothers.

- Sampling: 30x7 Cluster Sampling
  30 villages were identified by cluster sampling and from each village 7 children were to be included as a part of the study.
  **The desired sample size was 210, but only 154 could be achieved. Due to time constraint and workload in financial year ending, it was difficult to visit all the villages.*
- Duration: Two and a half months (February 5 to April 30, 2014)

- Data Collection Method: Interview with a semi-structured questionnaire

  After reaching the center of the village, a direction was identified by dropping a pencil/pen. The first seven under five children in that direction were included as the sample units. Anthropometric measures of the child were taken and the mother was interviewed through a semi -structured questionnaire.

- Data Analysis : The data was analyzed by using SPSS software and Microsoft Excel. The WHO Child Growth Standards were used to assess the nutritional status of the under-5 children.

Inclusion criteria –

.

Children of age group 0-5 yrs.

Mothers of children 0-5 years who are available for nutritional assessment

Mothers who are residents of that village for more than one year.

Exclusion criteria –

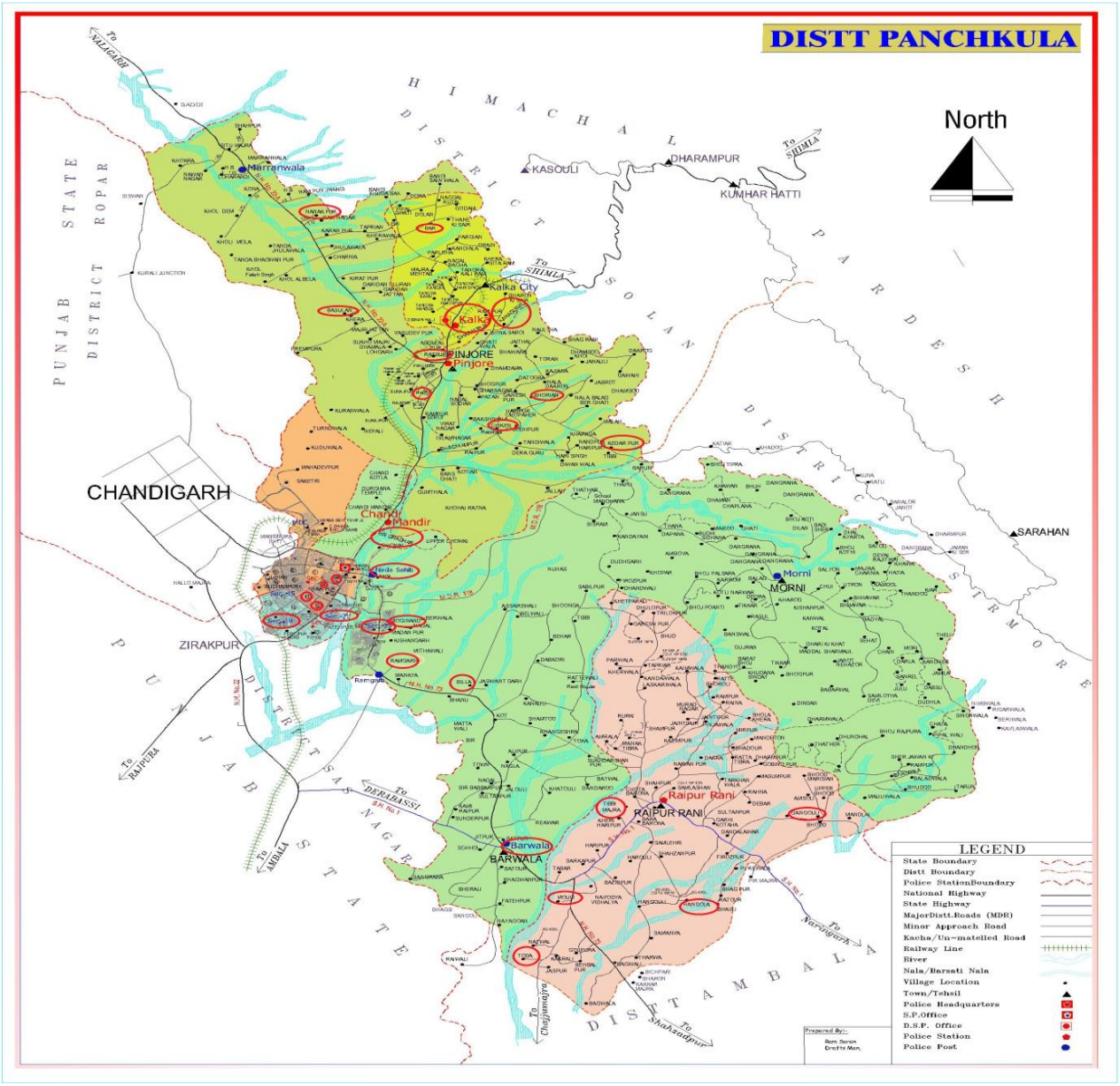
The Children whose mothers are not available.

The Children who are severely ill.

Table: 2 List of Villages Visited

Kalka	Raipur	Urban PPK
Beerghaghar	Billa	Ashiana Pocket A
Kanguwala	Ramgarh	Ashiana Pocket B
Nanakpur	Barwala	Sec19
PPC Kalka (2)	Mouli	Sec 28
Ratpur	Toda (2)	Indra Colony , Rajiv Colony
Naida Sahib	Moginand	Sec 6, Sec 10

Map of villages under the study



Findings and Discussion

Nutritional Status is an indicator of well-being and malnutrition is the result of a complex process. Over the years, studies have shown that the factors that contribute to malnutrition among children are well established and have been stable overtime; however every territory and culture can face different problems which could make these factors vary. Therefore, it is important to understand these factors in order to alleviate malnutrition.

The present study was conducted in twenty two villages of four blocks. The sample included 154 under 5 children. In the study fifty three percent of male and forty seven percent of female children were part of the study. Information about socio-economic status of the households, maternal characteristics and individual characteristics of the children were obtained and analyzed.

Section 5.1 General Findings

The Chart 1 represents the Caste-wise classification of households. The most of the households belonged to OBC and SC category. The General category was twenty seven percent in the study. A small proportion of the households belonged Scheduled Tribes.

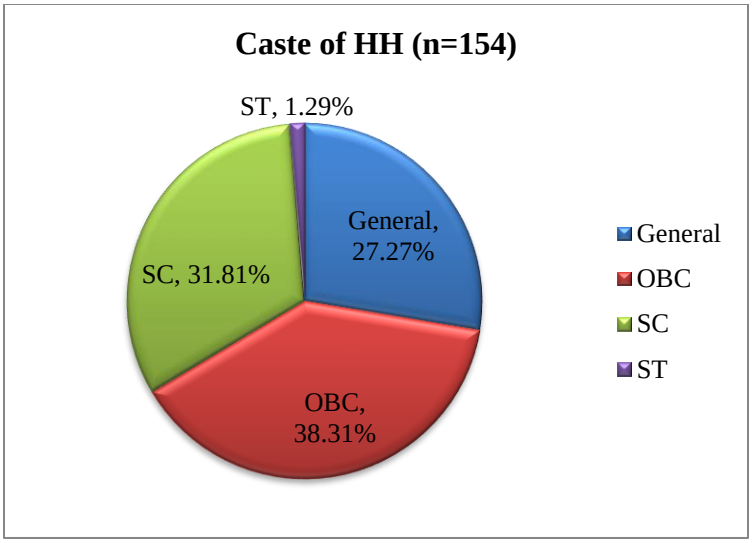


Chart 1

Chart 2: Eighty two percent households belonged to Hindu religion and about Five percent were Muslim, Eleven percent was Sikh and few belonged to Christianity as shown:

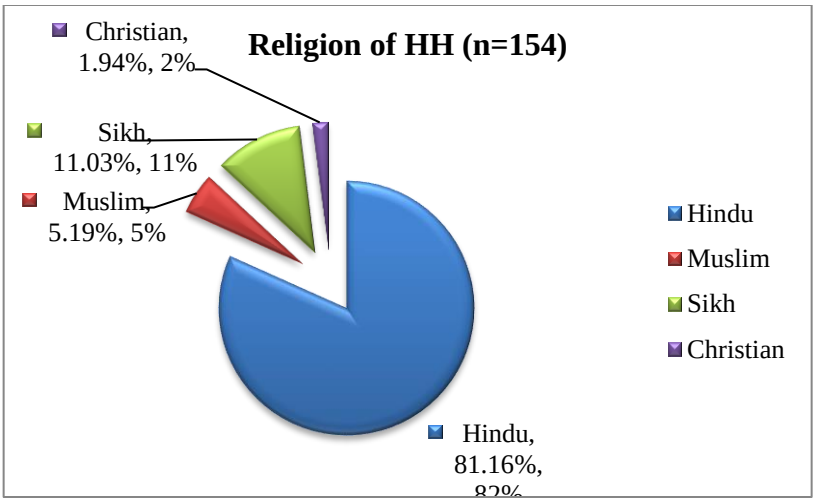
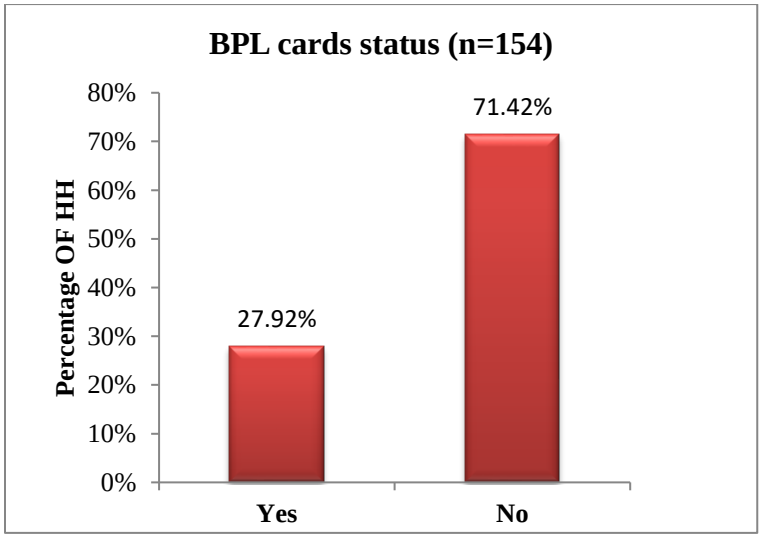


Chart 2

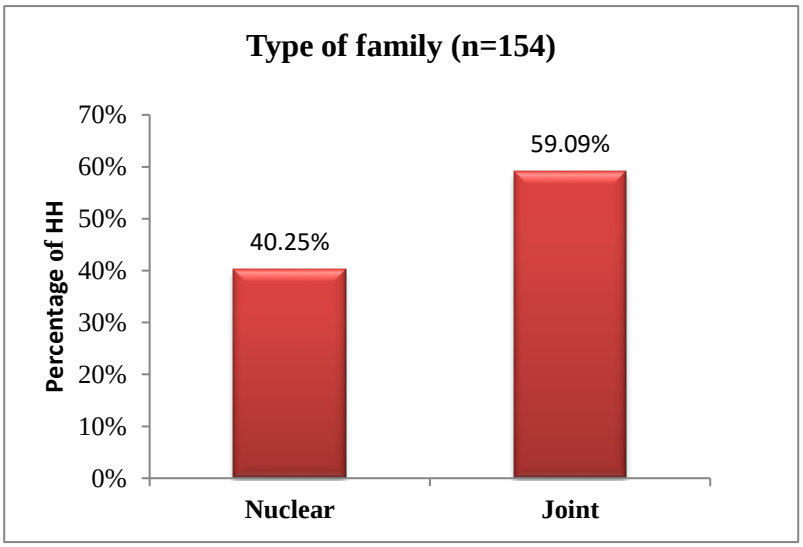
The Graph 1 shows the percentage of households Below Poverty Line. Only Twenty seven percent households have BPL card. Seventy two percent of households were APL and didn't get any benefits over govt. schemes.



Graph 1

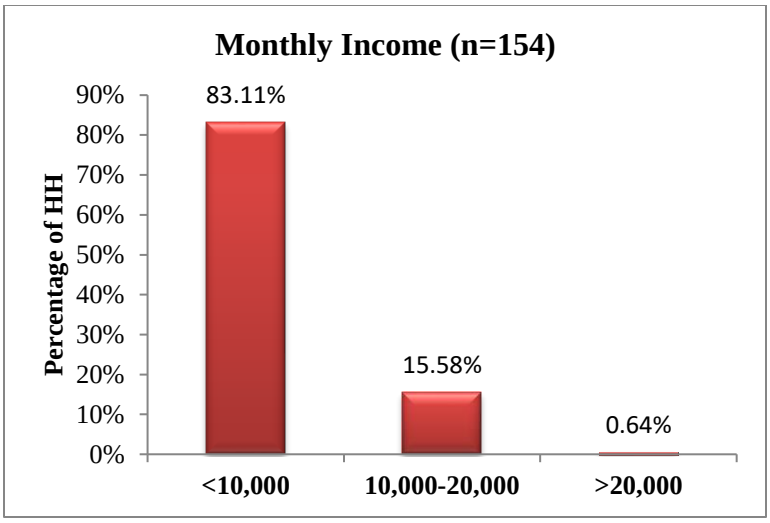
The Graph 2 represents the maximum number of households lived in a joint family. During the study the maximum number of family members found was 20 and the minimum was 3.

Fifty nine percent of the households lived in a joint family whereas; Forty percent lived as nuclear family.



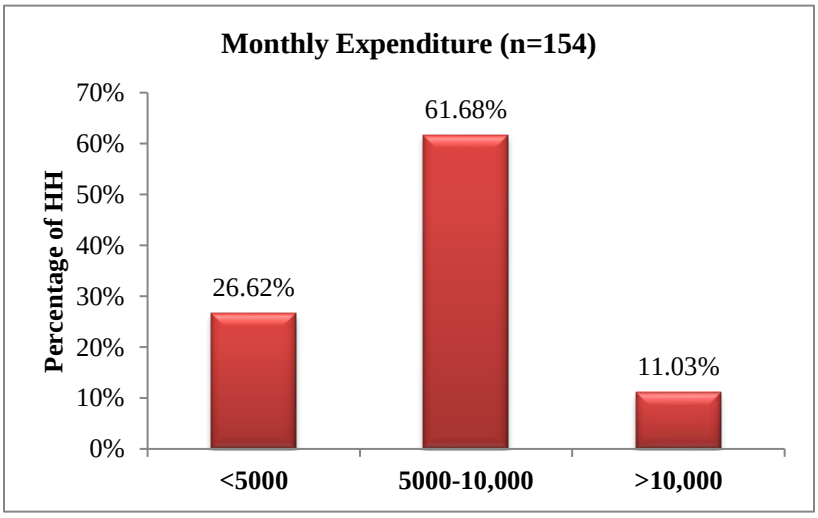
Graph 2

The graph 3 reveals that the economic condition of the households visited was very poor. Eighty three percent of the households had monthly income less than ten thousand. They could not even earn rupees ten thousand in a year. Only Fifteen percent household could earn 10 to 20 thousand on monthly basis. Only few households of the study were earning above 20 thousand per month.



Graph 3

The monthly expenditure of most of the households was less than five thousand to ten thousand as represented in graph 4. This is because, in maximum families head of the family was doing labor. And only eleven percent families spent more than ten thousand for monthly expenditure. Twenty seven percent HH were not able to spend on their family more than five thousand.



Graph 4

The majority of households lack basic amenities in these areas. The females /mothers had no idea about the income or expenditure as they were not directly involved in money matters in the family.

The chart 3 below represents the educational status of the mothers. One fourth of the mothers interviewed were illiterate. Sixteen percent of them had studied primary and thirty one percent mothers had done 10^{th} and 12^{th} .Only twelve percent mothers were graduate. Education of mother is important in determining the nutritional status of the children.

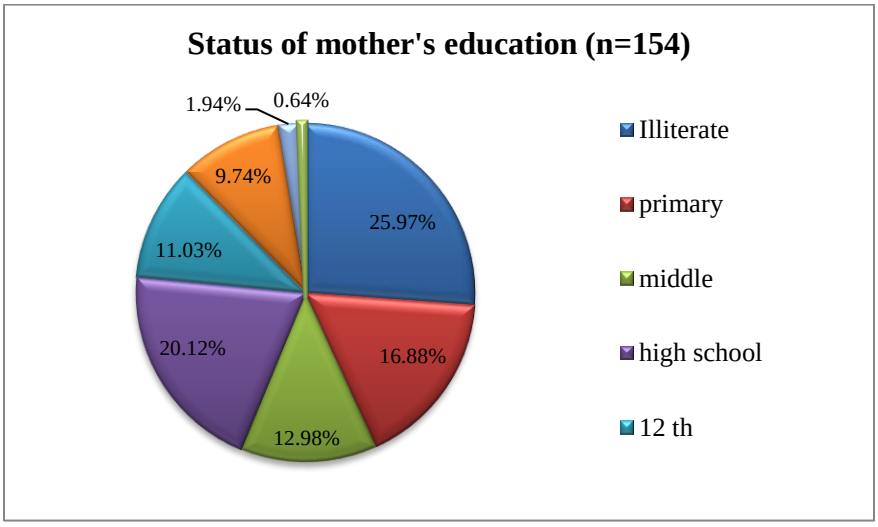
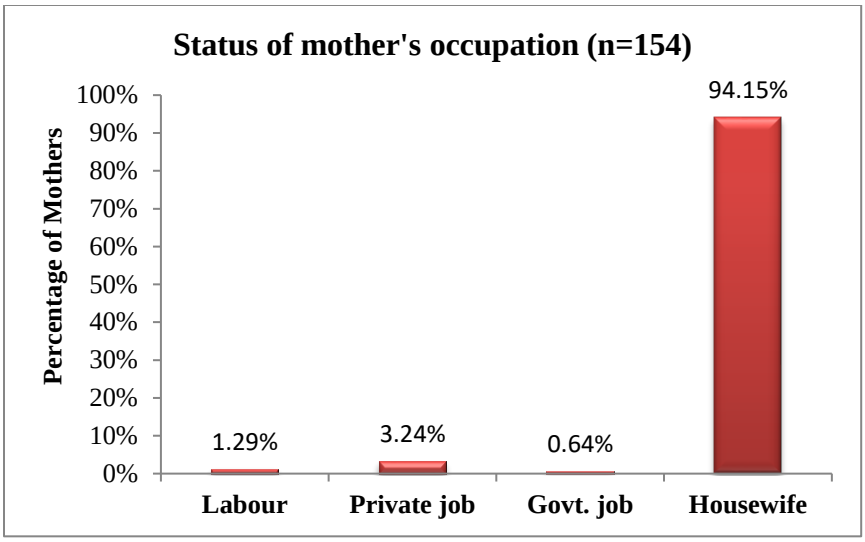


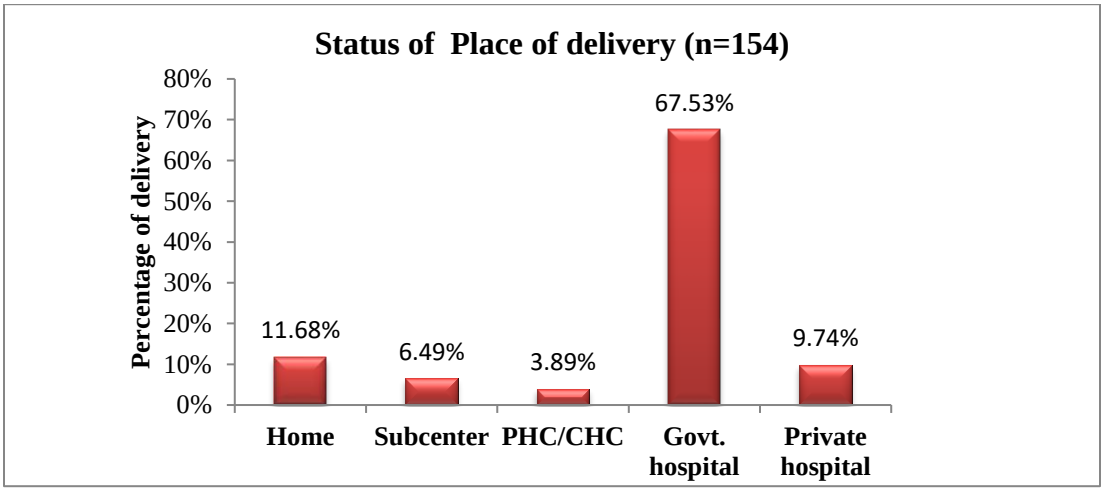
Chart 3

The below graph no.5 represents ninety four percent of the mothers were engaged in household work only. Rests of them were involved in labour work or other private business.



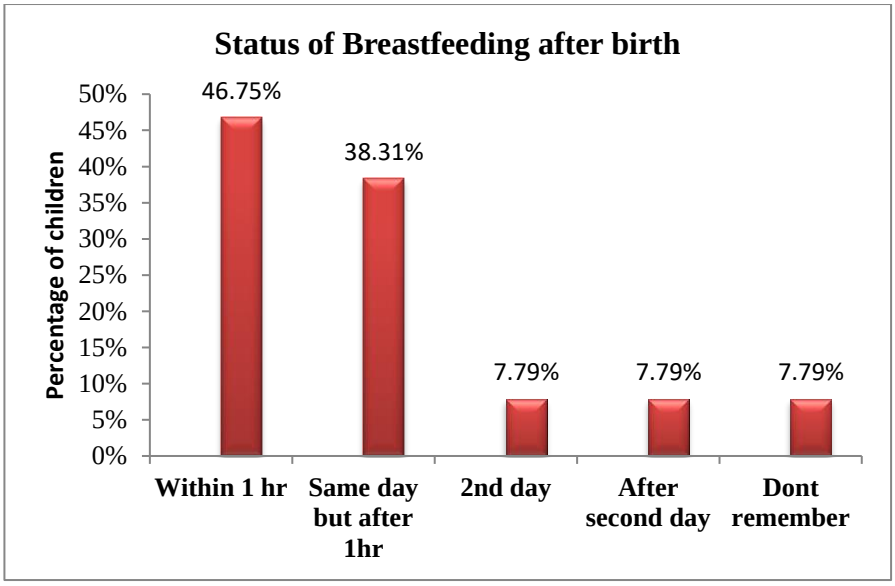
Graph 5

Almost all the mothers under the study were registered for the ANC. Maximum deliveries were conducted at Govt. institutions; Eleven percent deliveries were at home. Nine percent of deliveries were at Private institutions. The main reason behind home deliveries was that women and other members had not received quality services in the govt. institutions and some preferred home deliveries because they felt better in their home by dias.



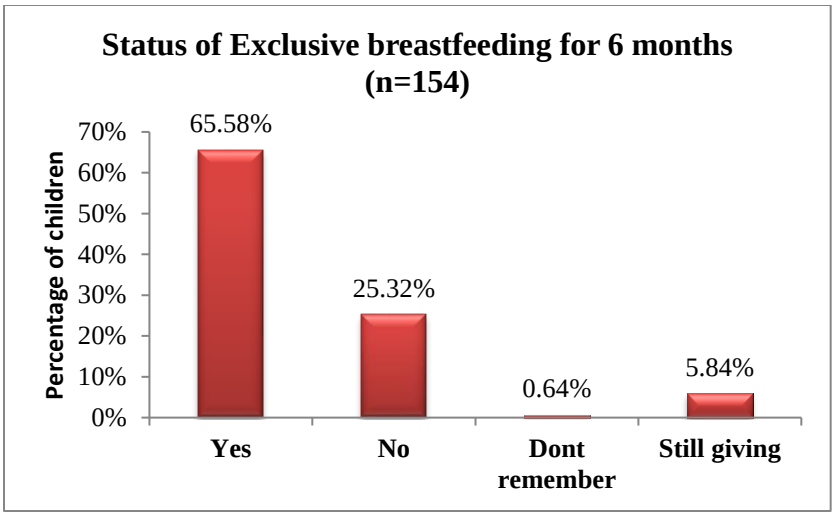
Graph 6

The below graph 7 represents that breastfeeding was initiated within an hour in about forty six percent cases. Rest of the children received breast feed after one hour. In govt. institution deliveries the practice of breastfeed with in 1 hour was followed in each case. But private institutions were not following this practice. Insufficient/absence of breast milk was another reason for not feeding the baby within an hour. According to NFHS-3 in Haryana, 19 percent children received with in half hour breastfeed and 22 percent children received within one hour.



Graph 7

The below graph 8 represents that almost seventy percent of mothers gave exclusive breastfeed to their child in the study. Twenty five percent children did not receive exclusive breastfeeding due to lack of awareness in mothers. They had given water, cow's milk, biscuit, fruits etc before six months of age. About four percent were still giving exclusive breastfeed to their child because their children were below six months.



Graph 8

The chart 4 shows age wise distribution of children in the sample. The major part about forty percent was formed by the children between the age group of 13-24 months or between one to two years. Fifteen percent of the children were below 6 months and twelve percent to 25-36 months age group.

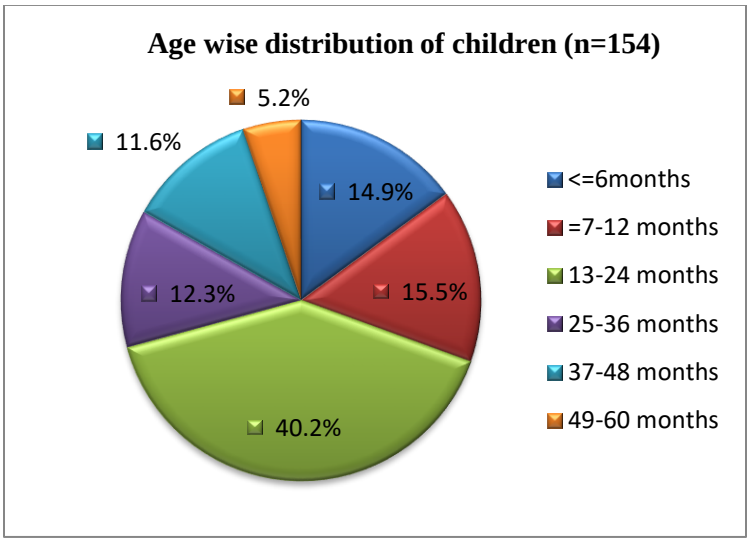
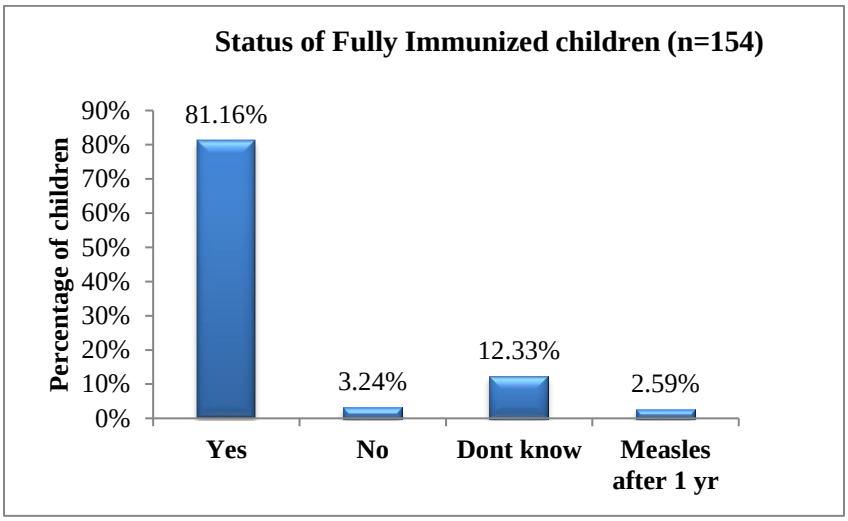


Chart 4

Eighty one percent of the children were fully immunized as shown in Graph 9. The immunization status of children was identified by the MCP Card. Some of them who didn't have the card confirmed the immunization status on recall basis and by anganwadi worker's registers. Three percent of the children were partially immunized. The common reason for children not receiving complete vaccines within one year was due to migration from the native place one year back.



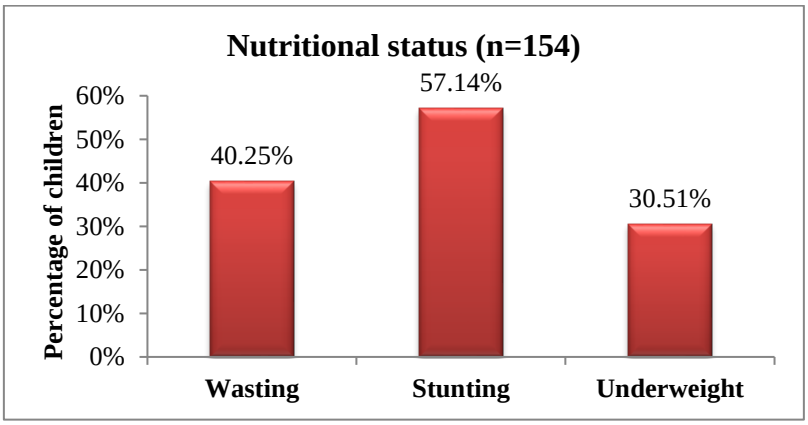
Graph 9

Common observations during survey

- All the children under study were enrolled in Anganwadi Centers.
- The Anganwadi workers were not skilled enough to take proper Anthropometric measures of the children.
- Women continue to breastfeed their children exclusively, more than 6 months.
- A few of the families had livestock (milching) in their household. Instead of giving milk to their children, they sell it in market for a small amount of money.
- Iodized salt was used in every household.
- All households have electricity.
- All of mothers registered in 1st trimester of pregnancy in the institutions. Maximum were taken ANC package including 4 ANC visits, IFA supplementation, and 2 doses of TT. Few refused to take IFA due to bad ordour or some gastric problems.

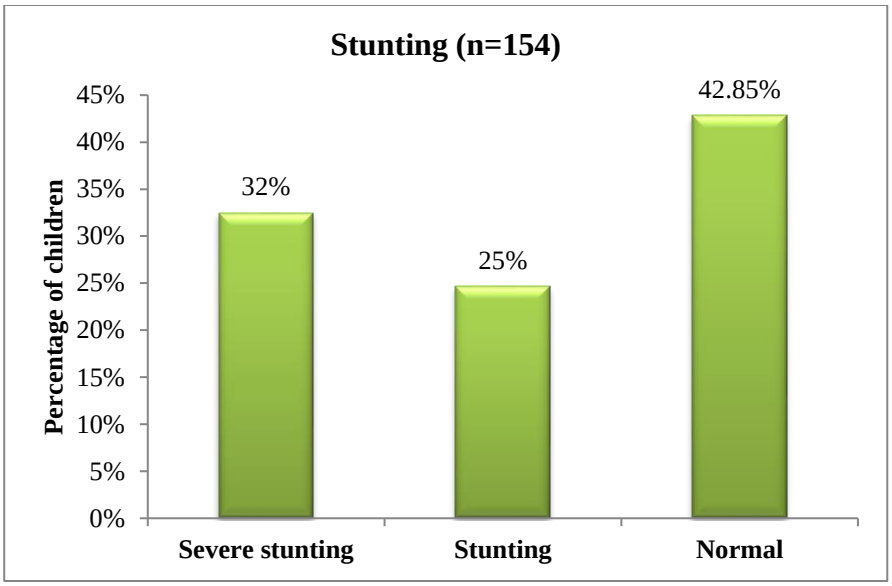
- People go out in fields for defecation those have not toilet facility in their house.
- More than 50 percent of the households use cloth washing soap (Nirol/Wheel) for hand washing after toilet.

Section 5.2 Nutritional Status of the Children under the study.



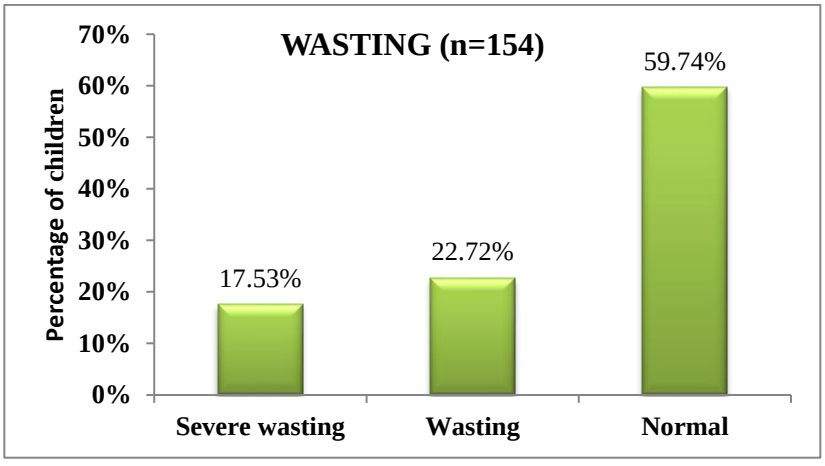
Graph 10

The graph 10 above represents the picture of Malnutrition among under-5 children. Nearly forty percent of the under-5 children had wasting, fifty seven percent were stunted and thirty percent were underweight. NFHS III (2005-06) data shows that 18 % children have wasting, 52% are stunted and 18% are underweight in Haryana.



Graph 11

The graph 11 shows the thirty two percent and twenty five percent of children with severe stunting and moderate. Stunting represents Chronic Malnutrition. According to NFHS-3, in Haryana 19.4 percent children are severely stunted and 45 percent children are stunted. According to the study on malnutrition by PGI reveals that Panchkula , Ambala , Karnal and Yamunanager have maximum malnourished children. About forty two percent were stunded in these areas.

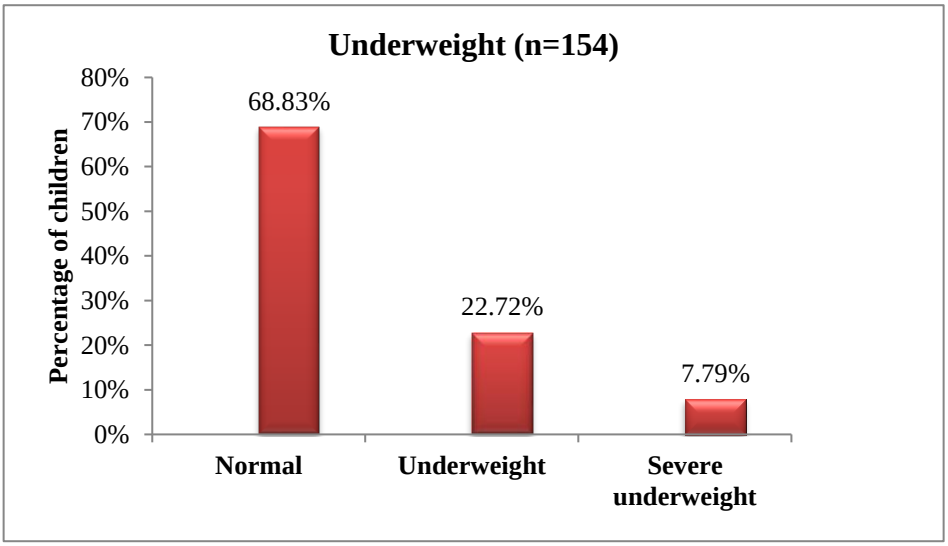


Graph 12

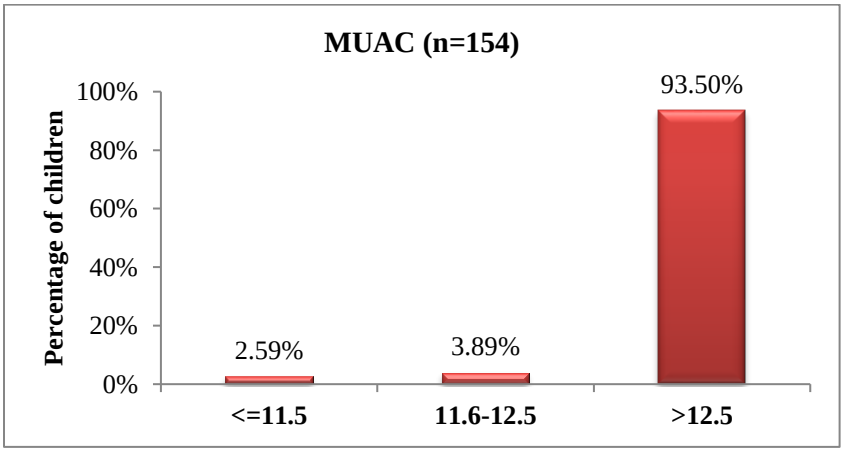
The above graph represents out of total children Twenty two percent were under wasting, about seventeen percent children were severely wasted and nearly sixty percent were normal

as shown in graph 12 above. According to the NFHS-3, five percent and nineteen percent children are severe wasted and wasted respectively. And according to PGI in four districts wasted children were seventeen percent.

The graph 13 represents that nearly eight percent children were severely underweight and 22 percent were moderately underweight. According to NFHS-3, 14% and 39.6 % children are severely underweight and underweight respectively. And in PGI study thirty seven percent were underweight.



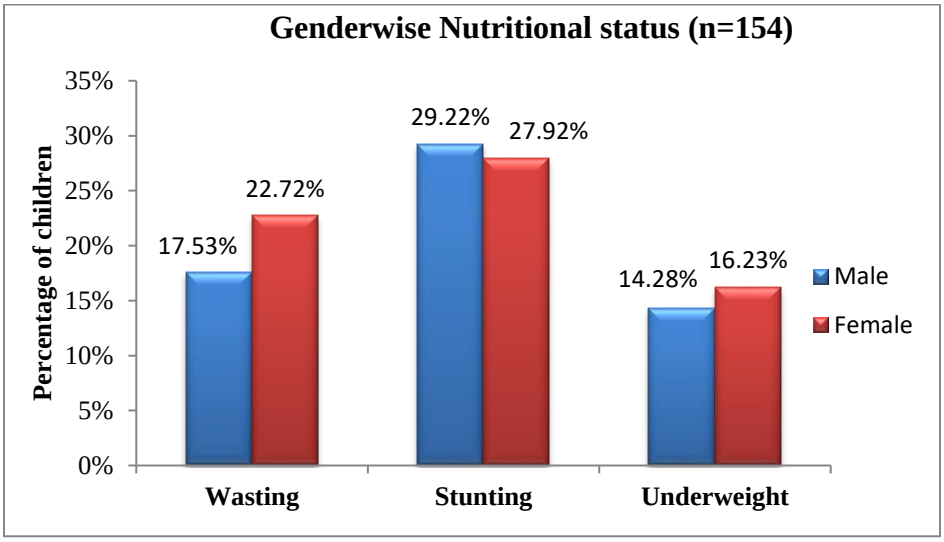
Graph 13



Graph 14

The above graph 14 represents the percentage of children in red (-3SD) and yellow (-2SD) category on the basis of Mid Upper-Arm Circumference. We can see that, the children in red category were about three percent; it means that these children were severely wasted. And in yellow category there were about four percent children and they all were wasted. Maximum children were in green category. It represents that maximum children were normal which was nearly about ninety four percent.

Section 5.3 (a) Individual characteristics and Nutritional Status of Children



Graph 15

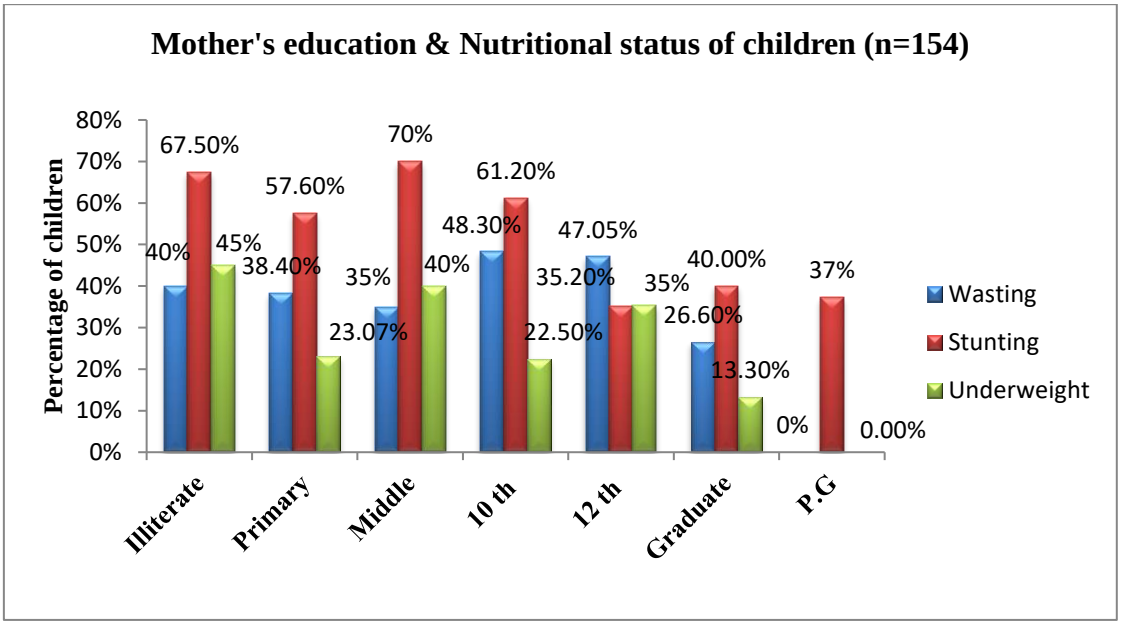
The above graph 15 shows the nutritional status of children according to the gender. Many studies reveal that female child is more at disadvantage when talking of nutrition. In the present study it has been found that male and female children were almost equally affected by Stunting and Underweight. But wasting had affected more number of female children than male child.

Table 3: Age wise Nutritional Status of Children

Age	Stunted %	Total (N=154)
0-12 months	32.60% (15)	46
13-24 months	61.90% (39)	63
25-36 months	68.42% (13)	19
37-48 months	78.94%(15)	19
49-60 months	83.33%(5)	6

During the study it was found that as the age of child increased the percentage of malnourished children (stunted) also increased as shown in the table 3.

Section 5.3 (b) Maternal characteristics and Nutritional Status of the Children



Graph 16

The graph 16 suggests that mother's education has an impact on the nutritional status of the children. Sixty seven percent of children with illiterate mothers were stunted. The mothers who were educated above tenth standard had the least percentage of stunted children.

Table 4: Occupation of Mother and Nutritional Status of Children

Occupation of Mother	% of Malnourished Children	Total Children (N)
Employed (Agriculture/Labour/Private)	50%	8
Housewife	57%	145

The mothers in the study were generally housewives. About fifty percent of children whose mother worked (fields/labour/private job) were malnourished (Table 4). On the other hand, about fifty seven percent of children with housewife mothers were malnourished. Several studies show relation between the nutritional status of children and the employment status of mother. But in this study there was not such a relation between these two.

Feeding Practices

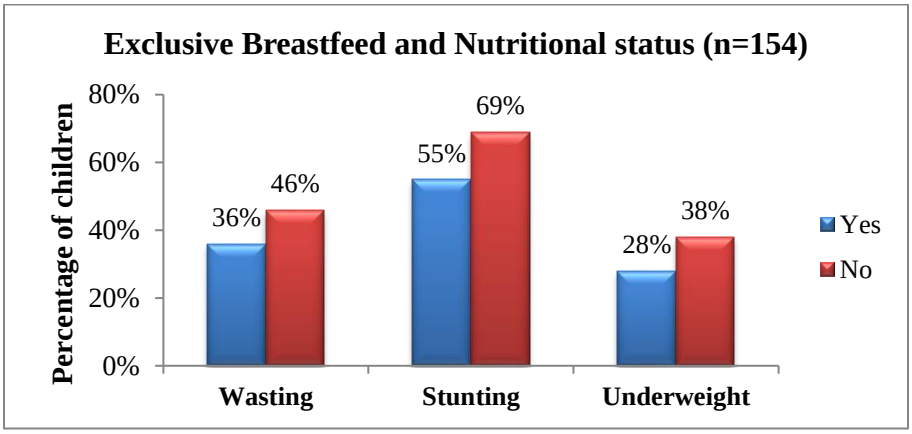
The important feeding practices in children include initiation of breastfeeding at the time of birth, exclusive breastfeeding for 6 months and complimentary feeding along with breastfeeding after 6 months.

The present study reveals that only 46 percent of the children under the study were given breastfeeding within one hour of their birth (Graph 7). The reason found that the deliveries who were conducted at Govt. institutions the practice of breastfeeding within an hour was followed there.

About Twenty two percent children received breastfeeding on the same day, but one hour after the birth. The reason found for not receiving breastfeeding within an hour was that, the

mothers maintained the practice being followed in their family. They had been following it since years and they were not ready to change their mindsets. In some villages, the health workers admitted that the mothers prefer home deliveries and sometimes they could not intervene to initiate early breastfeeding.

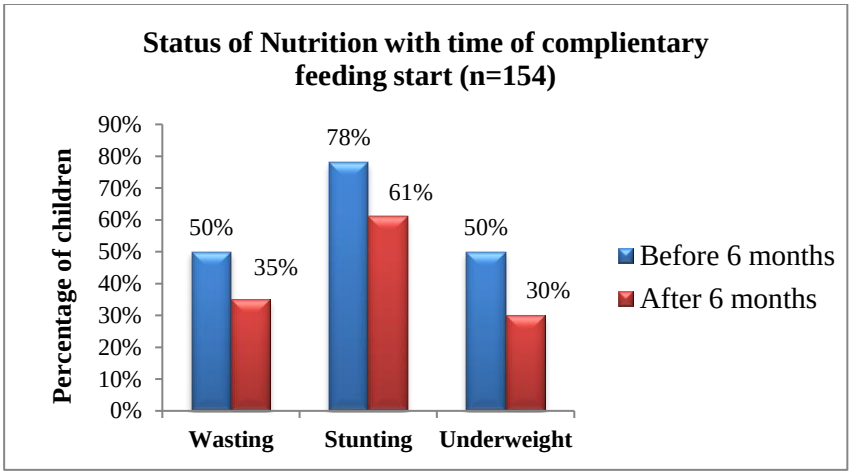
In some of the cases, mothers could not breastfeed their child due to inadequate milk production. Insufficient milk production indicates poor nutritional status of the mothers.



Graph17.

Under the study, sixty five percent of the children were given exclusive breastfeeding for 6 months (graph 8). In the graph it is clear that out of twenty six percent mothers who were not given exclusive breastfeed for 6 months to the child were more malnourished than who received exclusive breastfeed.

In many cases, the child was not given complimentary feeding even after 6 months.

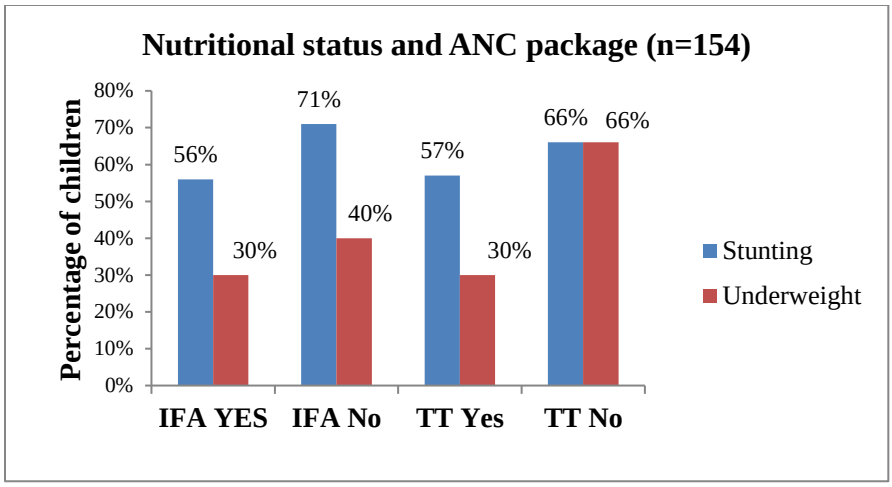


Graph 18

It is clear from the graph 18 that children with complimentary feeding after 6 months had better nutritional status than those with complimentary feeding before 6 months. About seventy eight percent children were stunted who received complimentary feeding before 6 months. The reason could be that these children didn't get the exclusive breastfeeding which is essential for growth and development of the child.

Health seeking attitudes

About Ninety five percent of the mothers had consumed Iron and Folic Acid tablets during pregnancy and they received complete ANC package with 4 ANC visits also. Two Doses of TT had received by ninety seven percent mothers. The percentage of malnourished children was found to be lower whose mothers consumed IFA tablet and received two TT doses.



Graph: 19

In this graph it is clear that the children's nutritional status was better whose mothers received complete ANC package.

Nearly fifty three percent of the mothers preferred govt. facility for treating their sick child. Also the distance of the nearest govt. health facility varied across the villages surveyed. Fifty nine percent of the household have nearest govt. health at 5 km distance and the percentage of children found malnourished in these households were fifty seven percent. For only three percent households the govt. health facility lied beyond 10 km and the percentage of malnourished children was sixteen percent in this group as represented in table 5.

Table 5: Distance from the nearest govt. health facility

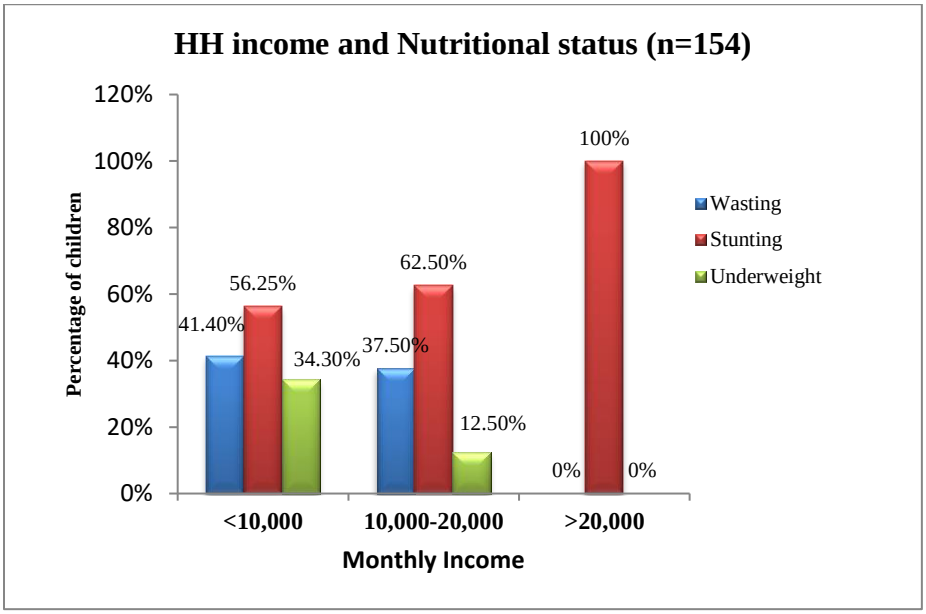
Distance from the nearest govt. facility	% of malnourished children	Total No. of Households (N)
< 5 Km	57%	92
5 – 10 Km	58%	55
>10 Km	16%	6

From table 6, it can be seen that distance to the nearest health facility is not related to the nutritional status of the child. Moreover, in the study, parents who preferred Quacks for the treatment of their children were more malnourished. About seventy two percent children

were stunted who received treatment from quacks and thirty nine percent were malnourished who received treatment from govt. facility.

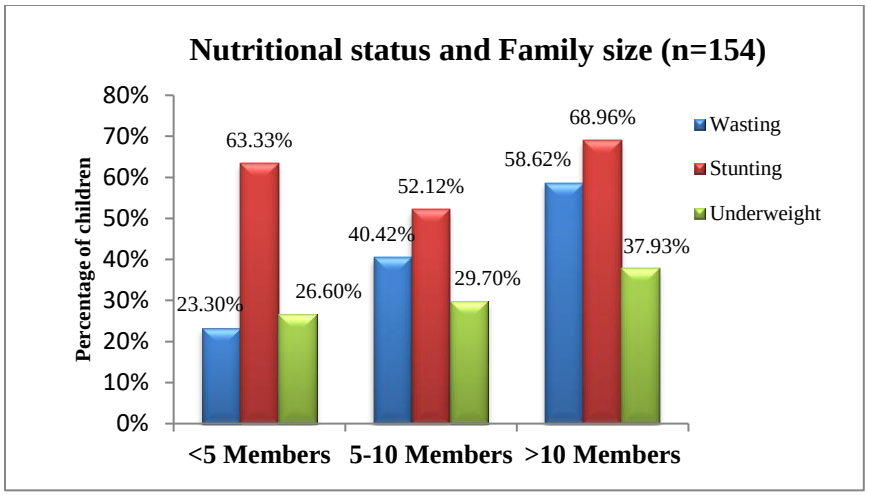
Section 5.3(c) Household characteristics and Nutritional Status of the Children

Income of the household do not impacts the nutritional status of the child as shown in the graph 19 below. The household with monthly income less than Rs 10,000 had higher percentage of underweight and wasted children. All the children of the households with monthly income more than 20,000 were stunted.



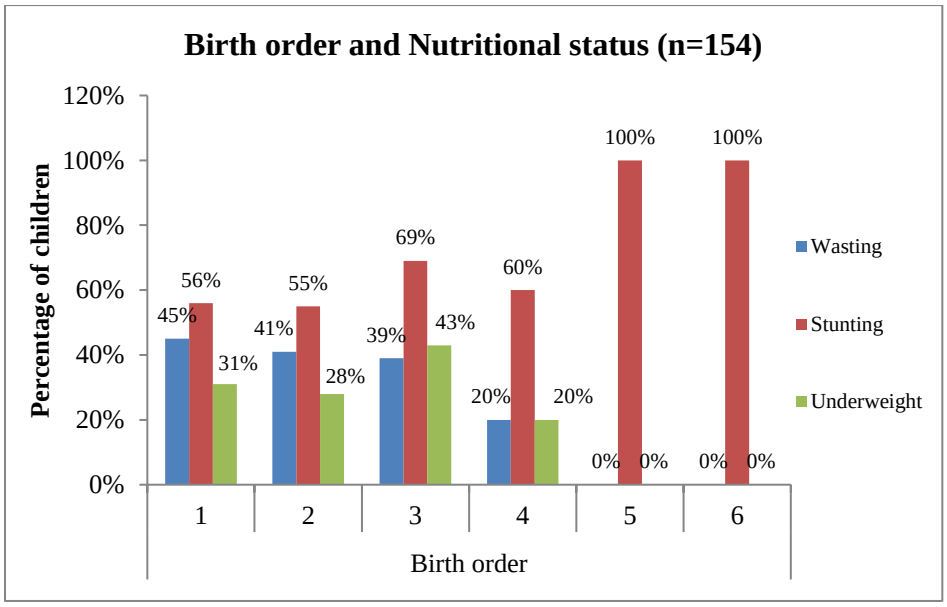
Graph: 20

Also, the monthly household expenditure was between Rs 5000-10,000 for nearly sixty two percent of the families. The twenty six percent households had monthly expenditure less than five thousand.



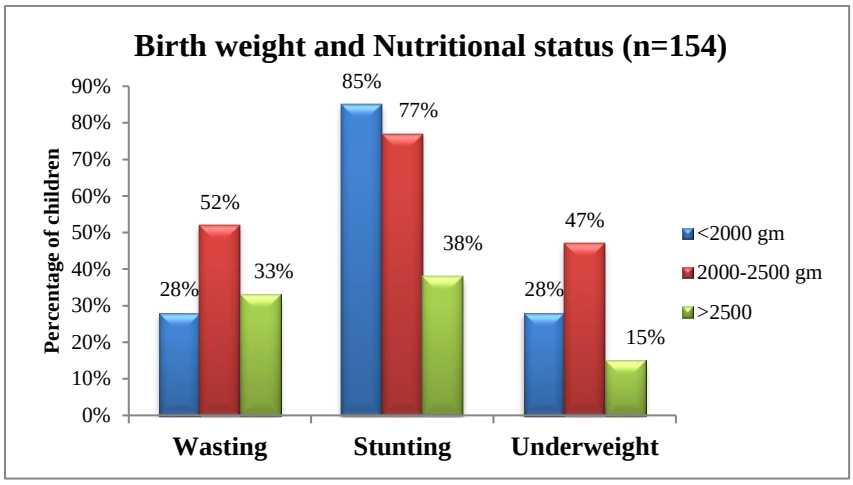
Graph 21

There have been studies which show that the number of people living in households can influence malnutrition. When more people live in a house with low income, lesser amount of food is given to each individual. Therefore, the probability of the child being malnourished increased. The present study had 39 households with more than 10 family members and the percentage of malnourished child was also high in this group as shown in the graph 21.



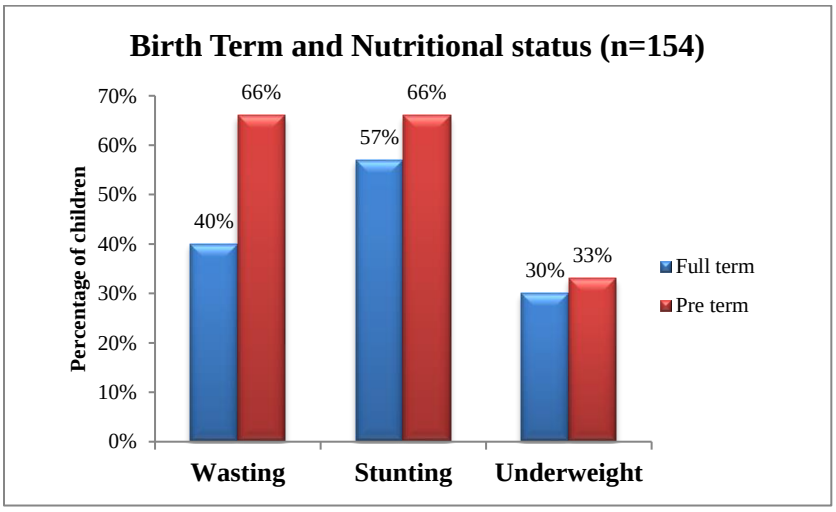
Graph: 22

In this graph it is very clear that as the birth order increases the percentage of malnourished children increases. In the study, the children whose birth order is 5 or 6 they all were stunted. Many studies results showed that birth order is one of the contributing factors in the nutritional status of children. We found same here.



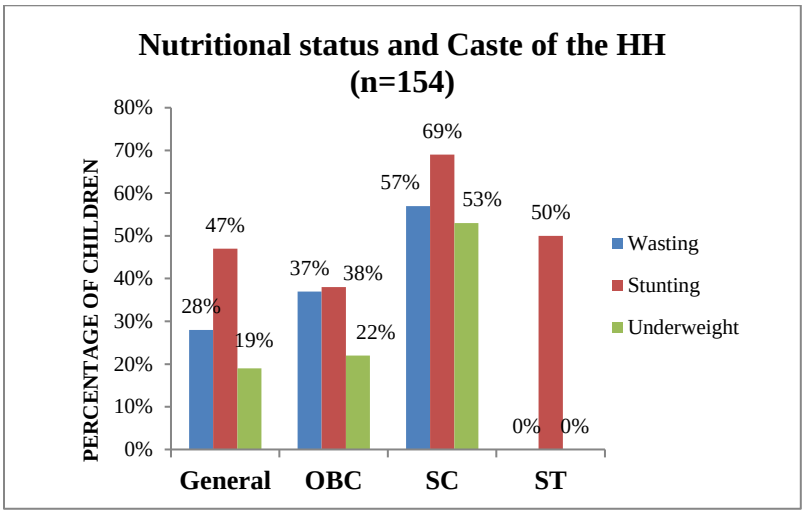
Graph: 23

In the graph 23, the malnourished status of children who had birth weight below 2000 gm and between 2000-2500 gm had more poor nutritional status than children who had normal birth weight. Other studies also revealed the same relation between birth weight and nutritional status of children.



Graph: 24

In this graph, the preterm children were more wasted, stunted and underweight than full term. The preterm children were those whose birth before 34 weeks in the study.



Graph 25

In this graph maximum malnourished children were in the SC category. Many studies show that children were more malnourished who belonged to schedule caste and schedule tribe than other category.

Recommendations

Malnutrition is a complex problem. There are multiple inter-linked causes of Malnutrition hence; there will not be single remedy for it. There have been a number of interventions to improve the nutritional status of the under-5 children, but still we are not able to reduce the malnutrition. We need to focus on already implemented interventions, in a better way, to reduce Malnutrition.

Direct Interventions

- *Promotion of complimentary feeding after 6 months (IYCF)*

  The nursing mothers should be given proper knowledge about the nutritional requirements of the child. After 6 months she must start giving preparations like Khichdi, Raab etc. to the child in addition to breastfeeding. The ASHAs & Anganwadi Workers should ensure that mother is giving complimentary feed to the child.

- *Effective screening and monitoring at community level*

  Malnutrition can be curbed if there is proper screening at the ground level. We need to upgrade the skills of Anganwadi Workers for identification of the malnourished children. Until & unless the malnourished child is identified, he/she cannot be treated. There's an urgent need to identify the children at risk and referring them to higher Malnutrition Treatment Centers.

- *Follow-up*

  After the child is discharged from NRC, there should be regular follow-up visits of that child at NRC level. Though the projects had shown positive results but there's no follow-up data for children who were benefitted by the project. The data is required for effective monitoring of the children.

- *Making malnutrition infant deaths visible*

  If a malnourished child dies (due to some complications), Malnutrition does not appear as the reason for his/her death on death certificates. There's a need to make deaths of these children count and to make governments accountable for preventing them.

- *Better mapping & planning at grass root level*

  In order to achieve the desired results, there should be a focused approach in the implementation of the interventions. The approach could have been more focused & concentrated.

Indirect Interventions

- *Ensuring low cost nutritious food through Public Distribution System*

  In high focus areas for Malnutrition, the government should provide nutritious food at low cost through PDS. An Identity card should be given to the household with malnourished children.

- *Zero Hunger Approach*

  This is a unique approach which is being followed in Brazil. Under it, all the major ministries at Central level are responsible for programmes relating to nutrition and food security. They contribute a percentage of the budget allotted to them in Malnutrition reducing interventions. Initiatives like Zero Hunger are required to combat Malnutrition.

Conclusion

To work towards the reduction of malnutrition among children, it is important to understand the underlying causes of this problem. The present study was carried out in 22 villages of three blocks of Panchkula. We presented some characteristics that may help in explaining and understanding malnutrition in the District.

We focused on three characteristics – individual, maternal and household characteristics . There have been several studies which prove that there s strong relationship between the nutritional status of the child and these characteristics. Female child is more disadvantageous when we talk of malnutrition. In the present study, we have found that gender had not been an important factor in deciding the nutritional status of the child. Age affects the nutritional status as weaning is started at particular age of the child (6 months). If it is done too early the child is deprived of the essential nutrients in the mother's milk; if is done too late it too deprives the child of the essential nutrients as breast milk alone is not sufficient for the growth and development of the child after 6 months.

Under maternal characteristics, the nutritional status of the children was found to be affected by the mother's education status. During the study, it was found that illiterate and less educated mothers had higher number of malnourished children as compared to the well educated mothers. Mother's employment status did show that working mothers had a higher percentage of malnourished children in comparison to housewife mothers. The exclusive feeding practices followed by mothers were another important factor. In the present study, we found that children who received exclusive breastfeeding for 6 months were less affected.

The study came out with a clear impact of the number of family members on the grade of the child. There have been studies which show the relationship between them.

The Government of Haryana has taken Malnutrition as a serious issue. There have been continous monitoring of the ongoing programmes. We are hopeful to curb the Malnutrition in the time to come.

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    Available at: http://www.who.int/childgrowth/standards/technical_report/en/ index.html.

Annexure A

To identify the clusters to include in the survey.

1. The first step is to obtain a list of all communities in the area to be surveyed with as up-to-date population data as possible. Omit from the list any areas which are not going to be accessible during the survey or which are known to no longer exist. List all communities (cities, towns and villages) included in the immunization target area to be evaluated. When the survey includes a big city, list all neighbourhoods.

2. List the population size of each community.

3. Calculate and write in the cumulative populations as each community is added. To obtain a cumulative population you must add the population of the next village to the combined total of all populations in preceding villages. The final cumulative population should be the same as the total population to be surveyed.

4. Using this formula determine the sampling interval. Round all decimals off to the nearest whole number. Enter the number in the space provided at (a) on the bottom of the Cluster.

$$\frac{\text{Total population to be surveyed}}{\text{30 clusters}} = \text{Sampling interval}$$

5. Select a random number which is less than or equal to the sampling interval. The number must have the same number of digits as the number of digits in the sampling interval. Enter this number at (b) at the bottom of the Cluster.

6. Identify the community in which Cluster 1 is located. This is done by locating the first community listed in which the cumulative population equals or exceeds the random number. Write '1' beside this community in the column entitled 'CLUSTER'.

7. Identify the community in which Cluster 2 is located. Use the formula below. The cumulative population listed for that community will equal or exceed the number you calculate.

Random number + sampling interval =.....

In the study- Total Pop = 553343

Sample Interval = 553343/30= 18445

Random no.= 14260

Annexures B

CHC	PHC	SC	VILLAGE NAME	cluster number
1. Kalka	Old Panchkula	Naida sahib Chandi	Azad Colony	1
	Old Panchkula	Tanda	Beerghaghar	2
	Pinjore 2	Bhorian	CRPF	4
	Pinjore 2	Chicken	HMT	6
	Kalka	Tipra	Kanguwala	7
	Pinjore 2	MALLA	Kidarpur	8
	Nanakpur	Basolan	Manakpur	9
	Nanakpur	Marranwala	Nanakpur	11
	Kalka	Bar	PPC-Kalka	12 , 13
2.Raipur	Kot	Kot	Billa	3
	Kot	Ramgarh	Ramgarh	14
	Barwala	Barwala	SC- Barwala	15
	Barwala	SC- Mouli	SC- mouli	16
	Hangola	SC-HANGOLA	T-majra	28
	Barwala	Kakrali	Todo	29 , 30
3.Urban panchkula	Urban pkl	Ganoli	Ganoli	5
	Urban pkl	Urban pkl	MDR	10
	Urban pkl	Urban pkl	SEC 10	17 , 18
	Urban pkl	Urban pkl	SEC 11	19
	Urban pkl	Urban pkl	SEC 12- A	20
	Urban pkl	Urban pkl	SEC 20	21
	Urban pkl	Urban pkl	SEC 21	22
	Urban pkl	Urban pkl	SEC 25	23
	Urban pkl	Urban pkl	SEC 4	24
	Urban pkl	Urban pkl	SEC 6	25
	Urban pkl	Urban pkl	SEC 7	26
	Urban pkl	Urban pkl	SEC 8	27

Questionnaire

S. No:

CONFIDENTIAL
FOR RESEARCH ONLY

Malnutrition Among Under-5 Children in District Panchkula (Haryana).

IDENTIFICATION SECTION

	IDENTIFICATION NUMBER ……
001	Name of the State ……
002	Name of the District……
003	Name of the Village…….
004	Interview date (DD/MM/YY) …… / …… / ……

Questionnaire

INT: THE RESPONDENT MUST BE CONFIDENT THAT HE/SHE CAN PROVIDE ACCURATE INFORMATION ABOUT HEALTH AND SOCIO-ECONOMIC STATUS OF THE HOUSEHOLD.

CONSENT: I am working with NRHM, Haryana (Child Health). A study is being conducting on the nutritional status of under-5 children in the four blocks of the district Panchkula.
It is very important for the success of this study that you take part in the survey. All information gathered will be kept strictly confidential.
Please fill the response in the corresponding box.
Do you agree to participate?
YES…….. 1 → CONTINUE
NO…….. 2 → END INTERVIEW

Section-A: Individual Characteristics

This section of the questionnaire refers to the physical characteristics of the child as required by the study.

S.No	Questions	Coding Categories
A.1	Name of the child	……
A.2	Gender of the child	Male…….. 1 Female…….. 2
A.3	Age in completed months	……
A.4	Weight of the child (in kg)	……
A.5	Height of the child (in cm)	……
A.6	MUAC (in cm)	……
A.7	Does the child has Immunization card ?	Yes…….. 1 No…… 2
A.8	If yes, is the child fully immunized for his/her age?	Yes…….. 1 No…… 2
	BCG / OPV 0 dose / Hep. B 0 dose	
	DPT 1 / DPT 2 / DPT 3	
	OPV 1 / OPV2 / OPV 3	
	Hep.B 1 / Hep.B 2 / Hep.B 3	
	Measles / Vitamin A doses	
A.9	If no, reason for partially/unimmunized child.	Not aware …… 1 Not required…….. 2 No faith…….. 3 No time…….. 4 Worker did not come…….. 5 No vaccine…….. 6 Session not held…….. 7
A.10	Is the child enrolled in local Anganwadi?	Yes…….. 1 No…… 2
A.11	Birth Order	

Section-B: Maternal Characteristics

This section of the questionnaire refers to the characteristics of the mother that may affect the nutritional status of the child.

S.No	Questions	Coding Categories
B.1	Name of the mother	……..
B.2	Age in completed years	……
B.3	Educational Status	Illiterate ..... 1 Formal Literate..... 2 Literate..... 3 (Specify)_____
B.4	Occupation	Agriculture…… 1 Labour…… 2 Animal Husbandry…… 3 Private job…… 4 Govt. Job…… 5 Housewife……..……6
B.5	Were you registered for ANC during pregnancy?	Yes…… 1 No…… 2
B.6	What was the place of registration?	Anganwadi…….. 1 Sub Center…… 2 PHC…….. 3 CHC…….. 4 Govt. Hospital……. 5 Private Hospital…… 6
B.7	Do you have MCP Card?	Yes…… 1 No…… 2
B.8	What was no. of ANC visits?	……
B.9	Did you consume IFA tablets during ANC period?	Yes…… 1 No…… 2
B.10	Did you receive TT1 & TT2 vaccine?	Yes…… 1 No…… 2
B.11	Where was the delivery conducted?	Home…… 1 Sub Center…… 2 PHC/CHC…… 3 Govt. Hospital……. 4 Private Hospital……. 5 Others…….. 6

B.12	Was it a full term delivery?	Yes…….. 1 No…… 2
B.13	What was the birth weight of baby?	< 2000 gms…….. 1 2000-25000gms…….. 2 >2500 gms…….. 3
B.14	When was the breastfeeding initiated after birth?	Within 1 hr…….. 1 Same day but after I hr…… 2 IInd day…….. 3 Don't remember…….. 4
B.15	Did you give colostrums to the child?	Yes…….. 1 No…… 2
B.16	Did you provide exclusive breastfeeding for 6 months?	Yes…….. 1 No…… 2
B.17	When did you start complimentary feeding to the child?	Before 6 months……. 1 After 6 months……. 2
B.18	Do you take her child to the Anganwadi center?	Yes…….. 1 No…… 2
B.19	What is the average time taken to reach the Anganwadi center?	<5 min…… 1 5-10 min…….. 2 >10 min…… 3
B.20	Do you take your child to the doctor when he/she falls ill?	Yes…….. 1 No…… 2
B.21	Where do you take treatment from for the sick child?	Govt. facility…….. 1 Private facility……. 2 Quacks…….. 3
B.22	Distance of the nearest Govt. health facility.	<5 km…….. 1 5-10 km…… 2 >10 km…… 3

Section-C: Household Characteristics

This section of the questionnaire refers to the economic status of the household. This information will be kept confidential and used for research purpose only.

S.No	Questions	Coding Categories
C.1	Caste of the Household	General…….. 1 OBC…….. 2 SC…….. 3 ST…….. 4
C.2	Religion of the Household	Hindu…….. 1 Muslim…….. 2 Sikh…….. 3 Christian…….. 4 Others…….. 5
C.3	BPL	Yes…….. 1 No…….. 2
C.4	Type of Family	Nuclear…….. 1 Joint…….. 2
C.5	No. of Family Members	……
C.6	Type of Housing Tenure	Own…….. 1 Rented…….. 2
C.7	Type of House	Kuccha…….. 1 Semi-Pucca…….. 2 Pucca…….. 3
C.8	Source of Drinking Water	Piped water…….. 1 Open well…….. 2 Tube well…….. 3 Hand pump…….. 4 Other…….. 5
C.9	Toilet facility in the Household	Present…….. 1 Absent…….. 2ss
C.10	Whether the hand washing practice after using toilet, is being followed in the Household?	Yes…….. 1 No…….. 2
C.11	Whether the household uses iodized salt or not?	Yes…….. 1 No…….. 2
C.12	Electricity supply in the household	Present…….. 1 Absent…….. 2

C.13	Household's monthly income	<10,000 …… 1 10,000-20,000…….. 2 >20,000……. 3
C.14	Household' monthly expenditure	<5000…….…… 1 5000-10,000…….. 2 >10,000…….. 3
C.15	Does the Household own Land?	Yes…….. 1 No…… 2
C.16	Any Livestock owned by the Household	Yes…….. 1 No…… 2
END INTERVIEW		