A STUDY ON GENDER BIAS AMONG UNDER FIVE CHILDREN IN RURAL AREAS OF BIJPAUR DISTRICT

By

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In partial fulfillment of the requirements for the degree of

DOCTOR OF MEDICINE

In

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Under the guidance of

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KARNATAKA

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ABSTRACT

Background:

Gender is a common term where as gender discrimination is meant for women, because females are more often the victims. Denial of equality, rights and opportunity and supplement inany form on the basis of gender is gender discrimination .Gender discrimination is due to the attitude and behaviour of the society towards the girl child.The girl child faces the neglect of the family in the form of a failure to provide her the basic necessities of life in terms of food, clothing, love, shelter, supervision, education and medical care. Differential treatment of the boys and girls within families can be attributed to the social religious, cultural and economic returns that sons provide to their parents relative to daughters. A clear understanding of past trends, current situation and future plans is the need of the hour. Within the scope on hand, this study was undertaken to review the existing situation of under five year children group from the perspectives of disparity in Breastfeeding practices, Immunization, health care during illness and there Nutritional status .

Objectives: 1) To assess the prevalence of gender bias among parents. 2) To identify the socio demographic factors responsible for gender bias.

Materials and Methods: A Cross Sectional Study was conducted across the ten Villages (2 Villages per Taluk) of Bijapur District from January 2013 to November 3013.A total of 1046 children (523 Males and 523 Females) were included in the study. Data regarding Breastfeeding was collected for children below two years of age to reduce the recall bias and children between 12-23 months were analyzed for Immunization services. After obtaining the oral consent of mothers, data was collected in a Pre tested, Pre designed, Semi structured Questionnaire by interview

technique. Data was analyzed using SPSS v.16. and Presented in the form of percentages and figures. Statistical tests such as Chi-square test, Chi- Square test for trend, Z test for difference between proportions and Fisher's Exact test was used to test for significance.

Results: Out of the 404 Children below the age of two years, 45.3% males and 40.6% females were initiated breast milk within one hour after delivery. Around 48 % (41% Male and 55% Female) were administered prelacteal feeds soon after delivery. 63.3 % (68.8% Males and 57.2 % Females) of the children were fully immunized. The coverage of all the individual vaccines except OPV 1 & 2 was higher among the male children .The dropout rate from BCG to Measles (13.2 for Male and 13.9 for Female), OPV 1 to OPV 3 (18.5 for male and 28.5 for female) , DPT 1 to DPT 3 (16.6 for Male and 34.4 for Female), Hep B1 to Hep B 3 (25.7 for males and 30.8 for females) was also higher among the female children. Around 41% (42% Male and 39.2% Female) of children had suffered from illness in the past one month. Fever, Diarrhea and Pneumonia were the common illness reported among both the gender. Majority (85.8% Male and 85.2% Female) availed services from government hospital. Parents spent higher amount for the treatment of male children. Around 43% (49.9% Male and 36.7% Female) were underweight , 38 % (40.1% Male and 35.9% Female) were stunted and wasting was seen in 29 % (36.5% Male and 21.2% Female).

Conclusion : Inspite of the IEC activities which are carried out by the Health workers, the practice of prelacteal feed administration was practiced by nearly half of the study population. There was no much difference among the both the gender regarding the breastfeeding practices. The fully immunized status of male children was higher than female children. The dropout rate of individual vaccines was higher among Female Children. Lack of information and motivation can be reason for lesser

coverage of fully Immunized children. The care, affinity towards the male children can be attribute to the lesser dropout rate of individual vaccines than the female children. Though the incidence of illness was almost equal among both Male and Female Children, the time lag to avail treatment was less for male children and the amount spent for the treatment was also higher for Male children shows the affinity of the Parents towards the Male children. Contrasting to the belief that male children will be well nourished and healthy, in our study the percentage of Children being Underweight, Stunting and Wasting was less among Female children than the Male children.

Key Words : Gender, Breast Feeding, Immunization, Nutritional Status, Discrimination.

LIST OF ABBREVIATIONS USED

WHO   –   World Health Organization

CEDAW   –   Convention on the Elimination of all form of Discrimination Against Women

UNDP   –   United Nations Development Project

UNICEF   –   United Nations Children Fund

ASR   –   Adult Sex Ratio

GB   –   Gender Bias

CSR   –   Child Sex Ratio

CRC   –   Convention of Rights Of The Child

ARI   –   Acute Respiratory Infections

CDI   –   Child Disparity Index

NFHS   –   National Family Health Survey

DLHS   –   District Level Household And Facility Survey

UIP   –   Universal Immunization Programme

LPV   –   Liquid Pentavalent Vaccine

OPV   –   Oral Polio Vaccine

DPT   –   Diphtheria Pertussis Tetanus.

df   –   Degree Of Freedom

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INTRODUCTION

"Children are the world's most valuable resource and its best hope for the future".

- **John F. Kennedy**

Children are nature's gift and the fountain of life. They are our future and are a supremely important asset of nation. Their nurture and solicitude is our responsibility. The strength of nation lies in the health of children.[1] There is a meaningful truth in saying that "Nation marches on the tiny feet of young children and no nation can flourish without due love and attention paid to its children".

Every child has the right to live and be cared for by his or her parents. The responsibility for the child's well-being relies on both the parents and the society. In Indian civilization too the child is believed to be a gift of the God to be nurtured with love, care and affection not only within the family but also within the society as a whole.[2]

Realizing the importance of children, World Health Organization (WHO) has declared the themes relating to children in the following years,[3]

1951-Health for your Child and World's Children.

1979- A Healthy Child a Sure Future.

1984- Children's Health Tomorrows' Wealth.

2005- Make Every Mother and Child Count.

Gender is a common term. Unfortunately since ancient times it is the gender that determines the position in the society. It manifests as men above women and women are regarded as inferior and less valuables solely by virtue of their sex. Gender hierarchy is manifested in family relationships, inheritance laws and customs; valuations of women's work and its general invisibility; and the power to make decisions in society, the family, work place, religious and other cultural aspects.

Denial of equality, rights and opportunity and supplement in any form on the basis of gender is gender discrimination. Gender discrimination is meant for women, because females are more often the victims. Gender discrimination is due to the attitude and behavior of the society towards the girl child.

Dr. Amartya Sen in his paper titled "The Many Faces of Gender Inequality" discusses a few of the varieties of the gender disparity between the genders namely, Mortality inequality, Natality inequality, Basic-facility inequality, Special-opportunity inequality, Professional inequality, Ownership inequality, Household inequality. The health problems currently affecting the girls arise from a complex combination of these factors. In most societies, girls face discrimination due to their under valuation, and this is further aggravated by their economic and social problems, leading to their poor health status. The targeted interventions for child survival programmes have benefitted mostly by the male children, whereas, the female children continue to decrease due to high mortality rate and ambient health seeking behavior of parents and families".[4]

The girl child faces the neglect of the family in the form of providing her the basic necessities of life in terms of food, clothing, love, shelter, supervision, education and medical care.

These discriminations in India was recognized in the 1901 that "there is no doubt that, as a rule, she [a girl] receives less attention than would be bestowed upon a son. She is less warmly clad, . . . she is probably not so well fed as a boy would be, and when ill, her parents are not likely to make the same strenuous efforts to ensure her recovery" [5]

In 1979, the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) was adopted by the United Nations General Assembly. As of June 2003, 174 countries – 90% of the UN members – are party to the convention. The convention defines discrimination as "any distinction, exclusion or restriction made on the basis of sex….in the political, economic, social, cultural, civil or any other field." Lack of discrimination in this sense could be seen as equal status between genders.[6]

Of late due to socio-economic factors, the incidence of neglect, abuse and deprivation, particularly with girl child is increasing alarmingly.

Gender inequality exists in every country, but it varies in degree. According to the Human Development Report of 2011 by United Nations Development Project(UNDP), India ranks 134 in this list with the Gender Discrimination Index value of 0.617.[7]

1.5 million of the 12 million girls born in India each year do not survive their first birthday and only 9 million will survive to see their 15th birthday.[8]

In India, there has been a steady decline of sex ratio from 972 in 1901 to 940 females per 1000 males in 2011. The child sex ratio (0-6yrs) is 914 females per 1000 males in 2011 census against 927 in 2001census .[9]

The sex ratio in Karnataka is 973 per 1000 males in 2011 census to 964 in 2001 census. The child sex ratio of Karnataka is at 943 per thousand boys in 2011 compared to 973 per thousand boys in 2001 census.[9]

It is well known fact that **"Educate a man, you educate one person, educate a woman, you educate a complete family."**

According to 2011 census at national level only 65.46% of Indian women are literate compared to 82.14% of men where as in the state of Karnataka 66.01% of females were literate compared to 82.47% of men. Bijapur district has an overall literacy rate of 67.15%.Far fewer girls than boys go to school. Even dropout rate for girls is more than boys, especially in rural areas.[9]

Gender differentials in nutritional status are reported during infancy, with discriminatory Breastfeeding and supplementation practices. Infant girls are breastfed less frequently, for shorter duration, and over shorter periods than boys. Girls and women face nutritional discrimination within the family, eating last and least resulting in nutritional deprivement, leading to anemia and malnourishment.

The World Bank estimates (2009) reported that India is ranked 2nd in the world in the number of children suffering from malnutrition . The most growth retardation occurs by the age of two, and the damage is irreversible. The prevalence of underweight in rural area is 50% versus 38% in urban area and higher among girls (48.9%) than boys (45.5%).[10]

Gender differences in health care between girls and boys are the direct consequence of discrimination against females in seeking health care. In India,

discrimination of girls in both preventive(immunization) and curative (treatment of illness) care are also reported with varying degrees amongst the states.

The percentage of fully vaccinated male children was 36.7%, 43.1% and 45.3% in NFHS-1, NFHS-2 and NFHS-3 respectively while the corresponding coverage for female children was 34.1%, 40.9% and 41.5%.[11,12,13]

A major area of concern and focus in India is the remarkable degree of variation in demographic profile, socio- economic factors and cultural practices which play a role in gender bias.

Hence in this scenario, this study will help to know the prevalence of gender bias among under five children in the rural areas of Bijapur district and factors responsible.

OBJECTIVE OF THE STUDY

1) To assess the prevalence of gender bias among parents.

2) To identify the socio demographic factors responsible for gender bias

REVIEW OF LITERATURE

Half of the world's population is females. They are doing two-third of the total work in the world but received only one-tenth of the world's total income. Nearly two-third of the women are illiterates and they have possessed only one percent of the total world's assets. In the world only one-fourth of the families are headed by female.[14]

We are told that India is the original home of the Mother Goddess. In our ancient history, we have many instances of women scholars and women rulers. Stories from mythology and folklore are recounted to prove that women in India have always been honoured and respected. We are proud of the fact that India was one of the first countries in the world to give women the right to vote.

In Developing and Underdeveloped Countries Societies Males are dominant and gender Discrimination is customized habitually. India is no exception. The majority of women go through life in a state of nutritional stress. They are anemic and malnourished. Girls and women face nutritional discrimination within the family, eating last and least.

The average Indian woman bears her first child before she is 22 years old, and has little control over her own fertility and reproductive health. Only 50% of Indian women are literate as compared to 65.5% men. This is because fever girls than boys sent to school and also school dropout rate is high among girls.[15]

Women face violence inside and outside the family throughout their lives. Police records show that a woman is molested in the country every 26 minutes, A rape occurs every 34 minutes.. ,Every 93 minutes, a woman is killed.[15]

United nations report on gender bias :[16]

- Of more than 130 million primary-school-age children worldwide who are not enrolled in school, nearly 60 per cent are girls.

- Of more than 110 million children dropping out from the school, approximately 60 per cent are girls.

- By age 18, girls have received an average of 4.4 years less than education than boys.

- In some countries of sub-Saharan Africa, adolescent girls have HIV rates up to five times as high as adolescent boys.

- Pregnancies and childbirth-related health problems take the lives of nearly 146,000 teenage girls each year.

- In sub-Saharan Africa, a woman faces a 1 in 13 chance of dying during childbirth/ delivery. In Western Europe, the risk is 1 in 3,200.

- At least one in three girls and women worldwide has been beaten or sexually abused in her lifetime.

- An estimated 450 million adult women in developing countries are stunted, a direct result of malnutrition in early life.

- Every year, two million girls and women are subjected to female genital mutilation

- 82% of girls in Rajasthan are married before the age of 18.

- 15% of girls in rural areas across the country are married before 13 years of age.

- 52% of girls have their first pregnancy between 15 and 19

PROBLEMS FACED BY A GIRL CHILD :[17]

For a girl child, life is a constant fight for survival, growth and development from the time she is conceived. The table given below depicts the life chart of a girl child and highlights the many life threatening problems she faces.

Years	Problems faced
Before Birth to 1 Year	• Feticides and Infanticide • Curative services (less care during illness) • Preventive (non or incomplete Immunization services) • Promotive aspects (Discrimination in breast feeding and weaning)
1 to 11 years (this includes specific problems faced by age groups 1-5 years and 6-11 years)	• Discrimination in access to food and health care • Deficiency condition due to vitamins (vit A), micronutrients (iodine and iron) , Malnutrition . • Health problems due to communicable disease / infectious disease like ARI , Diarrhea etc • Low school enrolment and School dropouts • Vulnerable to trafficking, child labour, child marriage • Abuse, exploitation and violence • Domestic chores

	• Looking after siblings
	• Restriction on mobility and play
	• Discrimination in overall treatment and parental care
11 to 18 years (Adolescents)	• Low literacy level
	• Restriction on mobility and play
	• Frequent illness due to Malnutrition, Anemia and micro-nutrient deficiency
	• Child Marriage
	• Early Child bearing morbidity and mortality
	• Poor access/ Denial to information and services
	• Early and frequent pregnancy coupled with abortions
	• Marital and domestic violence
	• Dowry Harassment, desertion, polygamy, divorce
	• Child labour, trafficking.
	• STDs and HIV/AIDs
	• Heavy domestic work including commuting long distances to collect fire wood/ drinking water
	• Unpaid and unrecognized work, and drudgery
	• No voice either in Home or society

DISCRIMINATIONS:

From womb to tomb females are facing lots of discrimination against them. Some of them are:

- ➤ Abortion Of Female fetus after knowing the sex by Scanning
- ➤ Female Infanticide (By giving liquid extract from cactus , giving raw paddy to new born female baby, by pressing the face by pillow or by breaking the female baby's neck)
- ➤ Not giving enough and nutritious food
- ➤ Not allowing to go to school (Denial of education)
- ➤ Not giving needy health care while in ill health
- ➤ Early marriage
- ➤ Eve teasing, Rape and Sexual harassment
- ➤ Dowry harassment and Death
- ➤ Divorce, Destitution even for silly or without any reason.

Causes of Gender Discrimination

The major causes of gender discrimination are

- ➤ Social causes :

  Illiteracy

  Ignorance

  Burden to the family

- ➤ Customs and beliefs:

  Son continues family tree

  Son will look after the parents

  Last rituals should be done by son

> ➤ Economic status:

Amount invested on girls doesn't not pay any dividend.

They are the property of the some other family

Poverty

SON PREFERENCE:

Strong son preference is reflected in women's statements regarding the number of children of each sex that they would like to have beyond those they already have.[18] Andersson et al.[19] reported the existence of gender biases even in Nordic countries, which are considered to be among the most gender equal in the world. He found that there is regular son preference in Finland, while other Nordic countries have reported a daughter preference since mid 1980s. This suggests that son preference may turn into daughter preference as societal gender systems change.

Son preference appears to be strongest in the northern and central regions of India and weakest in the south.[20]

Son preference in India arises from the perceived economic, social, and religious utility of sons compared to daughters. Parents of girls are typically socially bound to find suitable husbands for their daughters at an early age, often pay all marriage costs, and provide a dowry along with the social norms dictating the parents not expect much emotional or economic support from married daughters. On the other hand, Society expect son to provide financial and emotional care and regard them as a "social security" for old age. Inheritance laws largely favor sons; and, sons perform important religious roles, ensure the continuation of the family lineage, and may be desired to increase a family's capacity to defend itself or to exercise power.[21]

Jha et al [22] showed the evidence in his study that parents may want a daughter after they have sons but typically do not want more than one daughter, a preference which can differentially affect sex ratios at birth depending on the sex composition of surviving children.

SEX RATIO

Sex Ratio is defined as "the number of females per thousand males".[23]

It is generally divided into four subdivisions:

Primary sex ratio — ratio at fertilization

Secondary sex ratio — ratio at birth

Tertiary sex ratio — ratio in sexually active age group

Also called Adult Sex Ratio (ASR) . ASR is defined as the proportion of adults in a population that are male.

Quaternary sex ratio — ratio in post-reproductive phase

Hamilton [24] in the paper titled " Extraordinary sex Ratios " supported the Fishers principle..

Fisher's principle explains why for most species, the sex ratio is approximately 1:1 as follows:

Suppose male births are less common than female.

1. A newborn male then has better mating prospects than a newborn female, and therefore can expect to have more offspring.

2. Therefore parents genetically disposed to produce males tend to have more than average numbers of grandchildren born to them.

3. Therefore the genes for male-producing tendencies spread, and male births become more common.

4. As the 1:1 sex ratio is approached, the advantage associated with producing males dies away.

5. The same reasoning holds if females are substituted for males throughout. Therefore 1:1 is the equilibrium ratio.

In modern language, the 1:1 ratio is the evolutionarily stable strategy (ESS)

The sex ratio in India was at 972 in the year 1901,941 in 1961, 933 in the 2001, 940 in the 2011census data.[23] Sex ratio at birth can be affected by sex selectivity at birth. The sex ratio at birth for India for the year 2011 has been estimated at 878. It varies from 871 in rural areas to 891 in urban areas.

As of 2011, Kerala (1084) has the highest sex ratio while Haryana (877) has the lowest sex ratio among states. Karnataka stands at 11th position with sex ratio of 968. Daman & Diu as recorded the lowest sex ratio of 618 according to 2011 census.[9,23,25]

The recently reported census 2011 results point out a decline in number of girls per 1000 boys from 927 to 914 between 2001 and 2011 in the age group of 0-6 years . During the last four decades sex ratio of child population (0-6 years) has declined by almost 50 points.

In 1951, of the 35.3 % of child population of 0-14 years , boys constituted 17.8% , while girls were 17.5%, yielding a Gender Bias (GB) of 0.3%. In 1961 this declined to 0.1% because of increasing TFR (from 6.1 per thousand to 6.5 per thousand). This rise in total fertility rate (TFR) can be ascribed partly to the post-

Second World War fertility surge and partly to public health efforts towards maternal health, particularly at childbirth. The GB in 1991 increased to 0.8% and stood at 1.1% in 2001. It is at 1.9% in 2011.[26]

The sex ratio at birth is somewhat biased towards boys, with about 103–106 boys per 100 girls born. However, boys generally have higher infant/child mortality, which leads to a decline in the sex ratio in the early years of childhood. With economic development and improvements in health and nutrition, there is a reduction in infant mortality and in stillbirths. This disproportionately helps the weaker sex (boys), so that development is associated with a rise in the sex ratio. So more-affluent societies have a higher Child Sex Ratio (CSR), and the ratio also tends to rise with the process of development.

Ratio of boys to girls at birth .[27]

Year	Total	Urban	Rural
1981	104	103.8	107.4
1991	105.8	105.5	107
2001	107.9	107.1	110.4

Chaudhri and Jha in their paper commenting on the sex ratio trend concluded that there is a U-shaped curve representing number of girls per thousand boys that will eventually emerge in India. The duration and depth of the U curve will depend upon orchestrated public policies or their absence. What is most alarming is that the CSR is far more skewed in the 'Bermuda Triangle', which includes the land-rich and affluent states of Punjab, Haryana and Uttar Pradesh.[26]

Figure showing Sex Ratio and Child Sex Ratio

CENSUS 2011

Sex ratio and Child Sex Ratio (0-6 yrs)

— Sex Ratio 0-6
— Overall Sex Ratio

Whereas overall Sex Ratio has shown improvement since 1991, decline in Child Sex Ratio (0-6) has been unabated since 1961 census

Source: Office of the Registrar General & Census Commissioner

PTI GRAPHICS
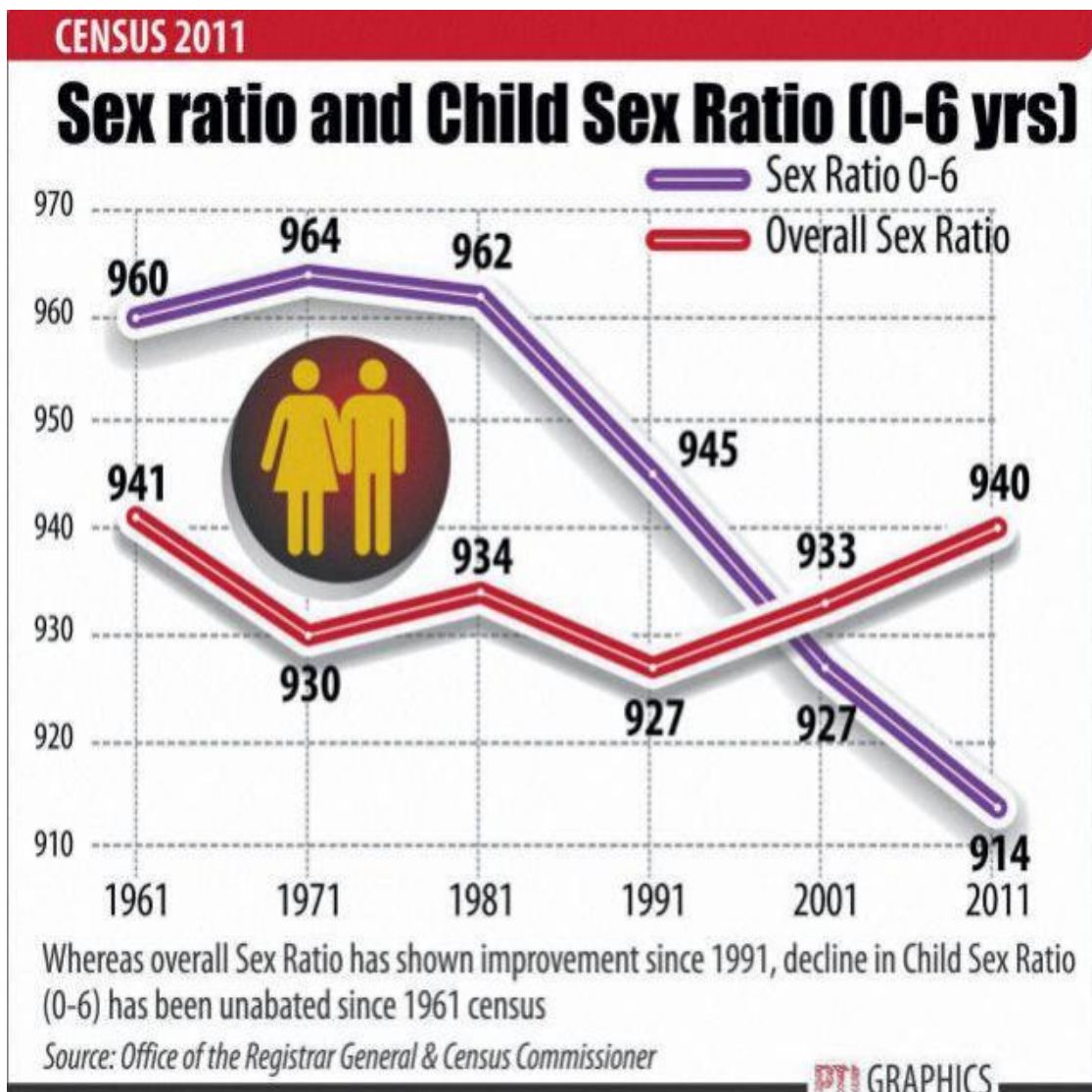
CONVENTION OF CHILD RIGHTS :[28]

In the year 1989 **The Convention on the Rights of the Child (CRC)** was adopted by most of the countries across the world to provide an agenda for identifying inequality and discrimination against girls , abolishing traditional practices and detrimental for the fulfillment of their rights and for defining an effective strategy to promote and protect the rights of the girl child.

The convention also seeks full equality between men and women regardless of marital status, in all fields of political, economic, social and cultural life . The countries which have signed the convention must take concrete steps by enacting strict laws, establishing women' s right commission and to create condition to ensure that human rights of girls and women are realized .The progress of the states which have signed the convection is monitored by the UN Committee on the Elimination of Discrimination against Women.

Other than the CRC, the **Convention on the Elimination of all forms of Discrimination against Women (CEDAW)**[6], ratified by 163 countries, is the most extensive and widely ratified international agreement promoting the rights of girls and women.

India also stands much above than many countries as it is also extremely effected the women and girls discrimination, which is in fact a hierarchal imposition of patriarchal nation. Hence we need to be more focused on these views more effectively besides, empowering the women and girls.

There are four main core principles that define girls' rights. The rights of girls apply equally to all children regardless of gender

1. Regardless of the background of the child, the parent or the legal guardian, children must not suffer discrimination

2. Children have a right to life , survival and development in all aspects of their lives.

3. The best interests of the child must be primary consideration in all decisions or actions that affect the child or children as a group.

4. Children have the right to have their views heard and be taken seriously in all matters affecting their lives.

Recognizing this, UNICEF has declared 2014 as the Year of Innovation for Equity – to focus the world's attention on showcasing and developing innovative solutions for children's well-being. Throughout 2014, UNICEF will convene a series of "Activate Talks" which will bring together change makers from all walks of life to rethink and rework how we can deliver results for the most vulnerable and marginalized children.[29]

ELEVENTH FIVE YEAR PLAN PLAN:[30]

The objective for the 11th Plan was to holistically empower the girl child in all aspects so that she can become an equal partner with boys on the road to development and progress. This required addressing the various constraints /persisting problems facing the girl child. Both child development and primary health services should be on alert to address these challenges, and the community must be motivated to play a protective role. The focus was on **Four E's - Equality, Education, Enabling**

Environment and Empowerment so that she is provided with equal opportunity for survival and development, protected against neglect and abuse, and offered the enabling means to develop to their full potential, and lead a productive and healthy life.

The life-cycle approach of the girl child was viewed as a **" Capability Approach"**—as propagated by Amartya Sen where the girl child's contributions both in economic and social terms are given due recognition as equal in value and potential to those of boys.

Key issues of the girl child which were addressed in 11th five year plan through social/community audit were:

- ➤ Survival of the girl child and her right to be born —prevention of female feticide/ Infanticide
- ➤ Health and nutrition
- ➤ Enabling Education for the Girl Child
- ➤ Gender Sensitization of Educational System
- ➤ Abolition of Child Marriage
- ➤ Prevention of Girl Child Abuse, Exploitation and Violence
- ➤ Welfare and Development of Adolescent Girls

CHILD DISPARITY INDEX:

The growth of the children depends on the care they receive in early years of their childhood. To examine the disparity in male vs. female child in India a Child care disparity index was computed including four components, **viz. children received all vaccination, median duration of breastfeeding, treatment seeking for acute respiratory infections (ARI) and diarrhea .**[31]

Disproportionality is the level to which groups of children who belong to one category are at higher or lower percent /rates than their presence in the general population.

Disparity means a lack of equity between groups. The disparity index is a means of comparing the levels disproportionality among various groups.

For example: Disproportionality for male children in the child welfare system is calculated by dividing the proportion of male children in the child welfare system (the number of male children in the child welfare system divided by the total number of children in the child welfare system) by the proportion of male children in the population.

Disproportionality = Male children in child welfare /Total no of children in welfare
For male   Male children / Total no of Children

To calculate the disparity index for female children compared to male children the Disproportionality Index for female children is divided by the Disproportionality Index for male children.[32]

Disparity between female to male =   Disproportionality (female)
                                       Disproportionality (male)

Child care disparity index (CDI)

Round of Survey	Child Care Disparity Index (CDI)
NFHS-1 (1992-93)	0.073
NFHS-2 (1998-99)	0.053
NFHS-3 (2005-06)	0.064

The CDI value for India shows that overall the gender discrimination is not that prevalent in child care. The child care disparity index for child care values were 0.073 in NFHS-1, 0.053 in NFHS-2 and 0.064 in NFHS-3, which is almost equal to no gender discrimination. [11,12,13,31]

GENDER BIAS IN BREASTFEEDING PRACTICES:

The initial growth of a child depends upon the duration and frequency of breastfeeding it receives, since the breast milk provides important nutrients to infants and young children and protects them against certain infections and to some extent acts as a natural contraceptive. Although the practice of breastfeeding is universal in India, some studies have pointed out gender differences in duration of breastfeeding of children. According to these studies female infants are breastfed less frequently and for shorter durations than male infants, their weaning also starts earlier and they are given lower quality foods.[33]If parents have a fertility preference for sons, as is common in developing countries such as India, they will wean daughters more quickly to try again" for a boy, potentially increasing girls' exposure to contaminated food and water as an unintended consequence.[34]

In 2002, World Health Assembly resolved that exclusive breastfeeding for first 6 months is the most appropriate infant feeding practice.[35]

Medical literature has suggested multiple mechanisms through which breastfeeding promotes health for infants and young children in developing countries. First, breast milk contains glycan's that are believed to protect the gastrointestinal tract from various infections. Second, breastfeeding protects child from contaminated water and food especially in poor countries/communities with lack of sanitation. Perhaps most importantly, breastfeeding has been shown to be associated with lower child mortality.[36]

Rutherford et al.[37]argued that controlling for breast- feeding largely eliminates the negative correlation between infant mortality and subsequent birth spacing in Nepal. According to the estimations of The World Health Organization in developing

countries, mortality risk between ages one and two is twice as high if a child is not being breastfed.

Abhishek Chakravarthy[38] in his article titled "Gender Bias in Breastfeeding and missing girls in the role of fertility choice" found that the duration of breastfeeding, with boys was 0.657 months longer on average in North Africa. This is nearly twice the male advantage of 0.391 months found in India. For Sub-Saharan African children, the male advantage is smaller at 0.059 months compared to the duration of breastfed for girls.

A study by Mutharayappaetal[39]on son preference and its effect on fertility conducted during the Round I of the NFHS in the year 1992-93 found that boys were breastfed for a slightly longer period of time than girls in India as a whole. The median duration of breastfeeding was much shorter for girls than for boys in Haryana, Rajasthan & Madhya Pradesh with the son/daughter ratio as 1.24, 1.21and 1.19 respectively as against 1.07 for India. One reason that can be cited is the parents' desire to have another child sooner after the birth of the girl than after the birth of a boy, in the hope of having a boy for the next birth.

In the study done by Hemachandra and Singh [40]the birth intervals were shorter if parents have not reached their self-reported ideal number of sons resulting in decreased duration of breastfeeding to girl and even starting of early weaning food to the girls. They also found that girls are breastfed less if they are born after the mother has exceeded her desired number of offspring.

Jayachandran and Kuziemko[41] say that preference for having a future son causes a gender gap in breastfeeding if the current child is a girl. Demand for an

additional child is higher after the birth of a girl and thus mothers weans daughters sooner in the hopes of conceiving a son.

A study in rural West Bengal was carried out in 2004 by Pal I and Chaudhuri R N [42] on inequalities in rearing of children under five years showed that breastfeeding was initiated for 26.7% of the males within one hour of their birth compared to 18% of the newborn females. Prelacteal feeds were given to 43.9% of males and 50.5% of the females. 21.6% of females and 14.7% male didn't receive colostrum. It was also observed that among children aged 0-11 months and 12-23 months, a higher proportion of males were breastfed than females. Majority of the children were introduced complementary feeding between 6-11 months and a higher percentage of males were timely fed.

In the study done by Renitha R et al [43], 55.3 % of males were exclusive breastfed for 6 months when compared to 51.2 % of girls. The total duration of breastfeeding was 13.42 and 13.06 months for boys and girls respectively.

In the study done by Suman Chakrabatry etal[44] in the state of Orissa among tribal community they found that 58.6% of the male had initiation of breastfeeding within 24 hrs after delivery whereas only 37.2 % of girls was first breastfed in the same duration. 50 % of boys and 55.8 % of girls were exclusively breastfed for six months.

A study was done by Suresh Sharma[45] in the state of Haryana on the role of sex differentials in child health and nutritional status based on NFHS 2 data the median duration of breastfeeding is two months shorter for girls than for boys.

In the study done by Sangeeta Basu et al [46], around 67% of the male neonates and 37% of female neonates had received exclusively breast feeding for 6 months of duration.

In the dissertation submitted to KLE university titled Gender Disparity in Health and Nutritional Status in children under five years age in rural community by DhananjayPathak[47] equal proportion of males (57.68%) and females (59.71%) were given breast milk as the first feed, 43.59% females and 39.33% males were initiated breastfeeding within one hour. Also, males were exclusively breastfed for longer duration and were put to complimentary feeding late compared to females.

Child Breastfeeding Indicators and Child Disparity Index for Breastfeeding.

Round of survey	Median duration of breastfeeding		
	Male	**Female**	**Child disparity Index for Breastfeeding.**
NFHS-1 (1992-93)	25.3	23.6	0.040
NFHS -2 (1998-99)	26.4	24.6	0.041
NFHS-3 (2005-06)	25.4	23.6	0.042

Median duration of breastfeeding for children was 25.3 months in NFHS 1 , 26.4 months in NFHS 2 and NFHS 3 showed 25.4 months for Male and 23.6 months i, 24.6 months , 23.6 months in NFHS 1, NFHS 2 and NFHS 3 for Females respectively. The Child Disparity Index for Breastfeeding was 0.040, 0.041 ,0.042 in NFHS1,NFHS 2, NFHS 3 respectively.[11,12,13,31]

GENDER BIAS IN IMMUNIZATON SERVICES:

The vaccination of children against six serious but preventable diseases (tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles) has been the cornerstone of the child health care system in India. As part of the National Health Policy, the National Immunization Programme was implemented on a priority basis. The Expanded Programme on Immunization (EPI) was initiated by the Government of India in 1978 with the objective of reducing morbidity, mortality and disabilities from these six diseases by making free vaccination services easily available to all eligible children. The programme gained momentum in 1985 and was expanded as Universal Immunization Programme (UIP) with an objective to vaccinate at least 85 % of all infants.[23]

The vaccination schedule under the UIP is:[23]

Age	Vaccines
Birth	BCG, OPV-O, Hep B Birth dose
6 weeks	DPT -1, OPV -1, Hep B -1
10 weeks	DPT -2, OPV -2, Hep B -2
14 weeks	DPT -3, OPV-3, Hep B -3
9 months	Measles
16-24months	DPT Booster 1, OPV Booster 1, Measles 2nd dose, Japanese Encephalitis*
5 years	DPT Booster 2
10 Years	TT
16 years	TT

*Japanese Encephalitis (JE vaccine) vaccine only in 112 endemic districts

LPV (Liquid Pentavalent Vaccine) was introduced in the state of Karnataka during the second half of 2012. Diphtheria, Pertussis, Tetanus, Hepatitis –B and Hib vaccine are the constituents of LPV vaccine. LPV has been recommended for all infants and will be given in a 3-dose schedule. The first dose is given at 6 weeks of age or older, followed by two doses at an interval of at least four weeks between the doses. The vaccine is offered to all children younger than 1 year of age and the booster dose is not recommended in UIP in India.[48]

Child Immunization Indicators and Child Disparity Index for Immunization

Round of survey	Percent of children (12-23 months) received all Vaccinations		
	Male	**Female**	**Child Disparity Index for Immunization**
NFHS-1 (1992-93)	36.7	34.1	0.049
NFHS -2 (1998-99)	43.1	40.9	0.039
NFHS-3 (2005-06)	45.3	41.5	0.067

NFHS-1, NFHS-2 and NFHS-3, all show that males the percentage of fully vaccinated male children was higher than female children. The percentage of fully vaccinated male children was 36.7%, 43.1% and 45.3% in NFHS-1, NFHS-2 and NFHS-3 respectively while the corresponding coverage for female children was 34.1%, 40.9% and 41.5%. [11,12,13]

The child Disparity Index for Immunization was at 0.049,0.039,0.067 in NFHS-1, NFHS-2 and NFHS-3 respectively.[31]

DLHS-1 reported coverage among male children as 53.3% while for female children it was slightly lower (53%). DLHS-2 and DLHS -3 also showed a higher coverage among male children than female children.[49,50,51] The situation is similar in Karnataka, where all NFHS and DLHS reports show a higher coverage among male children than in female children.[52,53]

The coverage evaluation survey (CES) 2005 report however showed a higher coverage among females (55.1) than in males (53.9%).[54]

In the study conducted by Mahyavanshi et al[55], found that males had a higher vaccination coverage of 76.03% compared to female children (65.17%). The percentage of unimmunized children were also higher among females (5.62%) compared to males (3.31%).

A study done by Pankaj Kumar Gupta et al[56]in rural areas of Pune showed that the proportion of fully immunized children was marginally higher in males (87.61%) than in females (85.57%).

RS Gupta et al[57]conducted the study to evaluate immunization coverage in Alwar district found that immunization coverage was more for females than for males (48.4% for males and 52.3% for females).

In a study done by Sheth Jay K et al[58] in rural areas of Gandhinagar district of Gujarat state around 81.2%of the boys and 77.9% of girls were fully immunized.

The dropout rate from OPV 1 – OPV 3 was 6.61 % for boys and 6.66%for girls. Dropout rate from DPT 1 to DPT 3 was also higher in females (8.40%) than males (6.66 %).

In another study done by Govani K J et al [59] in rural areas of Ahmedabad district showed that around 76.2% of boys and 71.9% of girls were fully immunized .The dropout rate from OPV 1 to OPV 3 was 14.5% for boys and 26.3 % for girls . The dropout rate from DPT 1 to DPT 3 was 14.5% for boys and 26.3% for girls. The dropout rate from BCG to measles was 11.3% for boys and 17.8% for girls.

In the study done by Sutapa Mandal et al[60] in a rural community of West Bengal showed 83.7% of boys to be fully immunized when compared to 83.9 % of fully immunized girls.

A study was done in 2003 by Rohini Pande[61] on selective gender difference in nutrition and immunization in rural India showed that gender differences in immunization were larger in rural areas with 8–9% fewer girls than boys having received any or all vaccinations. The largest difference was among unvaccinated children, with 13% more girls than boys being totally unvaccinated.

A Study done by Pal I and Chaudhri[42] on gender inequalities while rearing of under five children in rural area of West Bengal showed that Primary immunization was completed in 80% of males compared to 79.2% of females.

A study was done by Suresh Sharma[45] in the state of Haryana on the role of sex differentials in child health and nutritional status based on NFHS 2 data. The overall figures for immunization coverage suggest that girls are slightly more likely to

be fully vaccinated than boys (66 % versus 65 %). However, girls are slightly less likely to have received each of the individual vaccinations except measles.

In the dissertation submitted to BLDE University by Arun P Jose[62] (2012)to evaluate the immunization coverage in the city of Bijapur in Karnataka showed 64.5% of Boys to be fully immunized when compared to 71.8% of girls . The dropout rate from OPV 1 to OPV 3 was 17.1 % for boys and 14.4 % for girls. The Dropout rate from DPT 1 to DPT 3 was 20% for males and 17.5% for females. BCG to Measles dropout rate was 21 % in boys to 16.3% in girls.

In the dissertation Submitted to RGUHS by Vivian Melwin[63] (2006) to evaluate immunization coverage in the Davangere Taluk around 63.9% of boys and 56.1% of girls were fully Immunized.

HEALTH CARE SEEKING BEHAVIOR OF UNDER FIVE CHILDREN:

Children below five year constitute 14 % of total population in our country. They are vulnerable group deserving special health care. children are considered to be susceptible to host of disease and infection and the most important causes of under five mortality are Acute Respiratory Infection(ARI), Preterm birth Complications, Diarrheal diseases, Intrapartum related complication, Malaria , Neonatal Sepsis, Meningitis and Tetanus.[23]

The Millennium Development Goal (MDG 4) aims to reduce under five child mortality by two-thirds between 1990 and 2015 .[23]

FIGURE: FACTORS AFFECTING HEALTH CARE SEEKING FOR CHILDREN .[64]
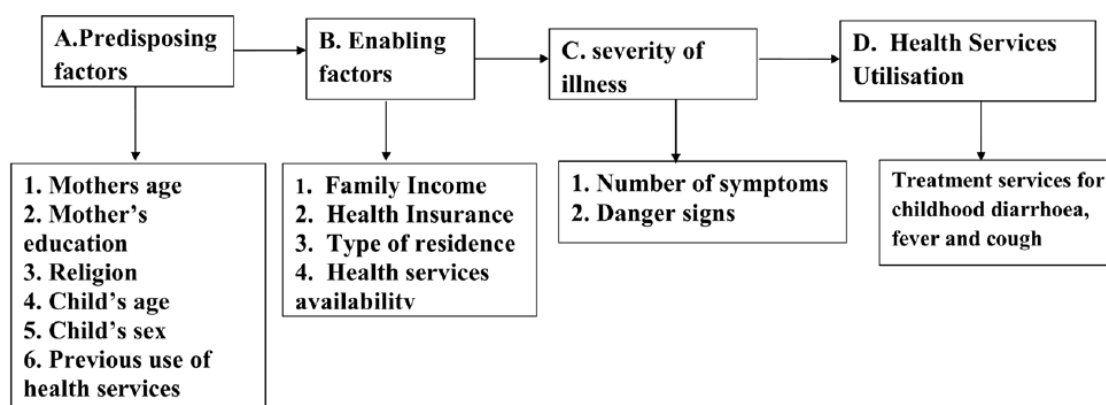
Child Health Care Indicator and Child Disparity Index for Health Care During Illness

Round of Survey	Percent of children who were taken to health facilities when child was sick and Child Disparity Index for Health Care					
	In Case of ARI			In case of diarrhea		
	Male	Female	Index	Male	Female	Index
NFHS-1 (1992-93)	82.2	78	0.115	82.2	79.0	0.089
NFHS-2 (1998-99)	66.5	60.8	0.107	73.2	72	0.026
NFHS-3 (2005-06)	71.7	65.8	0.12	74.4	73.2	0.027

Around 82.2%, 66.5%, 71.7% of boys and 78%,60.8%,65.8% of girls were taken to health facilities for treatment of ARI and Diarrhea. 82.2%,73.2%,74.4% of the boys and 79%,72%,73.2% of the girls received treatment according to NFHS 1,NFHS II and NFHS III survey's respectively. The child disparity index (CDI) for ARI was 0.115,0.107,0.12 and for diarrhea 0.089,0.026,0.027 in NFHS 1,NFHS II and NFHS III survey's respectively.[11,12,13,31]

In the study done by Aparna Pandey et al[65] in the state of West Bengal 790 children were under surveillance for ARI, Diarrhea, Fever for one year from June 1998 to May 1999. 48.1% boys and 51.9% girls were affected with one or more episodes of one or more diseases under surveillance. Diarrhea (52.4% in boys and

47.6% in girls), ARI (46.4% in boys and 53.6% in girls) and fever (39.5% in boys and 60.5% in girls) were the most common illness seen among children. The gender difference in care seeking during illness was maximum in children of daily laborers and none in those with regular jobs. The gender difference were seen in all socio economic class. 54.8% of boys had sought treatment from the qualified professional whereas only 37% of girls got the same treatment. The average time delay in hours for seeking treatment for boys was at 8.33(+- 4.49) and 21.19(+-9.44) for girls. Amount spent for the treatment expenditure was ₹ 76.76 for boys and ₹ 44.79 for girls. Parents travelled an average distance of 3.3 km for boys and 1.6 km for girls to seek treatment. All the three variables were statistically significant.

In the study done by B Ganatra and S Hirve[66] in the rural western India, 9.4% of the under five children had suffered from ARI and 5.3% of them suffered from diarrhea in the past days and there was no significant difference in the prevalence between boys and girls. Treatment was sought by the families in 77.8% of episodes of illness with no apparent sex bias. 88.9% of the boys were taken to a private doctor compared to 76.5% of girls. Medical advice was sought on the second day of illness and treatment was started on fifth day of illness among both the gender. Parents took referral action significantly more in the case of sons(69.2%) than daughters (25%).Families spent more money on the treatment of sons (average ₹ 35) than daughters (average ₹ 23). Boys were also more   favored when one need to travel a greater distance of more than 2 Kms to seek medical treatment.

In the study done by Nilanjan Ghosh et al[67] in the rural community of west Bengal state in India,16.2% of Males and 42.1% of Females didn't receive any treatment for the illness. Treatment at Public sector was received for 68.3% Males

and 44.7% Females .Factors like Literacy status of mothers , Poverty, Joint Family were found to be significantly associated with healthcare seeking behavior.

In the study done by Jeffrey R Wills[68] in rural Uttar Pradesh the overall rate of perceived illness was significantly lower among households with female (56%) than those with male neonates (68%).The proportion of male (74%) and female neonates (79%) ever perceived ill and receiving 'any healthcare resource' did not differ significantly. There was no gender difference in the general type of care provided to neonates ever perceived ill during the neonatal period. The rate of use of a healthcare provider was 40% and 39% for households with sick female and male infants respectively. There was no overall statistically significant gender difference in the type of first healthcare provider used. However, there was a trend where the households tended to use private unqualified providers more often for male neonates (65%) compared to female neonates (43%) perceived to be sick . In contrast, public care providers were used more frequently for female (32%) than male neonates (21%) perceived to be sick . The average amount spent for male newborn infants, however, was nearly four-fold higher (₹ 243.3±537.2) than for female newborn infants (₹65.7±100.7) . The median expenditure in using healthcare providers to treat neonatal illnesses was ₹ 22.5. The median amount spent for male and female newborn infants was ₹ 30 and ₹ 18 respectively.

Saswata Ghosh[69] in her paper titled Gender Differences in Treatment-seeking Behavior during Common Childhood Illnesses in India: Does Maternal Education Matter? Presented at 18th European Conference On modern South Asian Studies university of Lund, Sweden on 6-9 July 2004 said that boys are more prone to be affected by diarrhea and ARI than girls. Among affected children, the differences

among boys and girls was around 13 percentage points for diarrhea and around 10 percentage points for ARI. In case of ARI, girls in the age group of 6-23 months tend to discriminate in seeking care irrespective of educational attainment of their mothers. Illiterate and middle school completed mothers of older age group are less likely to seek care for their daughter for both the diseases. Treatment seeking for daughter increases among higher educated older mothers. It has also been observed that the second and third order girls are tended to be discriminated against more than others in case of diarrhea as are higher order girls in case of ARI irrespective of mother's educational attainment, though the gap decreases as education increases.

A study by the All India Institute of Medical Sciences examined health patterns in 85,633 children aged 0–36 months and found startling results that showed a gender bias towards girls. Of children who were hospitalized at least once, 64.6% were boys and only 35.4% were girls. The authors conclude gender bias is likely the only explanation for such a disparity as boys and girls were found to fall sick an equal number of times and with similar severity.[70]

A study was done by Suresh Sharma[45] in the state of Haryana on the role of sex differentials in child health and nutritional status based on NFHS 2 data .Among children under age three, boys (13%) are somewhat less likely to have suffered from diarrhea than girls (15 %). The proportion not treated is slightly higher among girls than among boys (7.6 % compared with 5.8 %).

In the dissertation submitted to KLE university titled Gender Disparity in Health and Nutritional Status in children under five years age in rural community by DhananjayPathak[47] the Parents were more serious and prompt in utilizing treatment for the illness in case of son than daughter as 59.63% males compared to 44.26% females

were immediately taken to a health facility for treatment. Almost equal proportion of males (89.80%) compared to females (84.47%) were taken to a private health facility. Parents travelled greater distance more in case of their son (39.80%) than their daughter (29.13%). Parents tend to travel approximately 3.8±2.12 km (Mean ±SD) for boys and 3.1±2.28 km (Mean ±SD) for girls to provide treatment. Parents tend to spend approximately ₹.56±54 (Mean ±SD) for boys and ₹.43±35(Mean ±SD) for girls for the travel. Parents spend more money as a part of treatment for 24.50% males and 14.56% females. Parents tend to spend approximately ₹.178±143 (Mean ±SD) for boys and ₹.130±127 (Mean ±SD) for girls for the treatment.

NUTRITIONAL STATUS OF UNDER FIVE CHILDREN:

Malnutrition is frequently part of a vicious cycle that includes poverty and disease. These factors are interlinked in such a way that each contributes to the presence and permanence of others. Socio-economic and political changes that improve health and nutrition can break the cycle, as can specific nutrition and health interventions. Malnutrition in children is the consequence of a range of factors like poverty, ignorance, illiteracy etc. and are often related to intake of poor quality food, insufficient food intake and severe and repeated infectious diseases or some combination of these three.

The dietary intake of children also affects the physical growth of children. Balanced diet not only enhance the growth and development of child but also provide protection from various infections and diseases. To examine the gender disparity in nutrition intake in India, a child nutrition disparity index was computed including three components, viz. proportion of children underweight, stunting and wasting respectively.

Child Nutritional Indicators and Child Nutrition Disparity Index .

Round of Survey	Underweight			Stunted			Wasting			NDI
	Male	Female	Index	Male	Female	Index	Male	Female	Index	
NFHS-1 (1992-93)	55.3	53.4	0.00	52.3	51.7	0.01	18.8	16.1	0.08	0.03
NFHS-2 (1998-99)	45.3	48.9	-0.06	44.1	47.0	-0.05	15.7	15.2	0.02	-0.03
NFHS-3 (2005-06)	41.9	43.1	-0.02	48.0	48.1	0.00	20.5	19.1	0.04	0.01

Data of NFHS 1 to NFHS 3 showed a decrease in the proportion of underweight and stunting while wasting as gone up .this trend is similar in both sexes.[11,12,13,31]

In a study done by Banerjee B [71] the overall prevalence of malnutrition among under five children was around 55.38% (77.6% Females and 31.7% males) . They also observed that more number of girls were malnourished when compared to boys, though this difference was not found to be statistically significant. Grade 1 Malnutrition was more common among females while grade II and grade III were more among males.

In a study done by Harishankar et al[72] showed that the prevalence of malnutrition was more among female children (53.01%) than males (45.85%). Severe grade of malnutrition was also prevalent among females (2.19%) than their male (1.8%) counterparts.

In the study done by Bhalani K D and Kotecha P V [73] also showed that more girls (68.2%) were malnourished than boys (58%) and the difference was statistically significant. Even in severity of malnutrition this difference was significant.

In a study done for the rapid assessment of nutritional status of children and dietary pattern of families residing in Siliguri, West Bengal by Sandeep Kumar Ray et al [74] the prevalence of malnutrition was observed to be 62.97%. Severely malnutrition were more in the 12-23 months of age group and also among the females. Overall 64.7% males and 61.58% females were malnourished in their study and the difference was not statistically significant.

In the study done by M Ndiklu et al[75] in the state of Rural Kenya Showed that Boys consistently had higher energy intakes than girls. 51.7%, 32.1%, 4.6% of girls and 35.9%, 14.6% and 1.2% of boys were stunted, underweight and wasting respectively. Of the total, 24.6% of the girls were severely stunted compared with

boys 16.3% .Boys also had a higher Z-score indices (height-for-age (1.33±1.86), weight-for-age (0.60±1.53) and weight-for-height (0.25±1.23) than girls 2.02±1.94, 1.37±1.27 and 0.10± 1.49 respectively. All the variables were found to be statistically significant.

In the study done by Dinesh Kumar et al[76] among under five children attending anganawadi centers in the city of Allahabad showed that around37% , 44.9%, 10.9% of boys and 35.4%,63.3%,10.2% of girls were underweight , stunting and wasting respectively.

In the study done by Shreyaswi S et al [77] the rural community area of Mangalore district showed that around 51.7% of boys were undernourished where as 71.4% of the girls were undernourished dissipating the high prevalence of undernourishment in girls .

In the study done by Chatterjee S and Saha S[78] among the children attending immunization clinic in Kolkata showed that 20.68%,10.34%,0.0% of the boys and 38.46%, 0.0% , 3.85% of girls were classified as grade I, grade II and grade III malnourished . More number of Girls were severely malnourished than boys .

In the study conducted by Chakraborty S et al[79] it was found that female had an overall higher   prevalence of PEM at 70.6% and 36.6% of them were in Grade I PEM . Among the males the overall prevalence of PEM was at 62.2% and only 19.7% of them were classified as Grade I PEM.

In the study done by Kaneta K etal[80] in the rural areas of Bangladesh , Of the severely-malnourished children, 54.2% were female and 45.8% of male. The gender

gap persisted in the multivariate situation, with female 1.44 times more likely to be severely malnourished than boys and statistically significant.

In the dissertation submitted to KLE university titled Gender Disparity in Health and Nutritional Status in children under five years age in rural community by DhananjayPathak[47] Overall prevalence of malnutrition was found to be 24.26%. Males (12.40%) were more malnourished than females (11.86%).

In the dissertation submitted to RGUHS by Girish B[81] from the overall prevalence of malnutrition of children in rural areas of Nelamangala Taluk was 40.5%. 23.39% of male children and 25.29% of female children were of grade I malnutrition. 13.79%, 1.84%,0.41% of male children were of grade II, grade III and grade IV PEM respectively. Presence of Grade I and Grade IV were more in female children compared to male children.

In another thesis submitted to RGUHS by Muralidharan M K [82]on malnutrition among children aged one to six years in a field practice area of J N Medical College Belgaum, mild and severe underweight (weight for age) was present in 106(33.13%) and 33(10.31%) of male children and 112(36.13%) , 38(12.26%) of female children. Though prevalence of Underweight was higher in female children the difference was not statistically significant. Mild and severe stunting (height for age) was observed in 69(21.56%) and 23(7.19%) of male children and 78(25.16%) and 27(8.71%)of females children. Prevalence of Mild Wasting (Weight for height) and severe wasting was 54(16.88%) and 16(5%) in male children and 48(15.48%) and 25(8.6%) among female children respectively.

Central and State Government Initiatives:

Child Labour Act

O The Child Labour Act prohibits employment of children (under 14 yrs) in 13 occupations and 57 processes contained in Part A & B of the schedule to the Act.

O It also lays down penalties for employment of children in violation of the provisions of this Act and regulates the employment of children with respect to working hours, number of holidays, health and safety in work place.[83]

Prohibition Of Child Marriage act

O According to the act, people marrying children and people involved in these practices, people abetting or attending a child marriage would face up to two years in prison and a fine of 1,00,000 rupees.[84]

National Plan of Action for the Girl Child:

O The National Plan of Action for the Girl Child for 1991-2000, is a specially formulated action plan by the Government of India to protect and promote the Girl Child. This plan seeks to prevent female feticides and infanticide, eliminate gender discrimination, provide safe drinking water and fodder near homes, rehabilitate and protect girls from exploitation, assault and abuse.[85]

Balika Samriddhi Yojana,1997:

O A series of incentives were included in the Yojana, including the likes of a gift of ₹ 500/- to the mother on delivery of a baby girl and the provision of an

annual scholarship for the girl to attend Schooling, with the overall aim of improving enrolment and retention of girls in school.[86]

Bhagyalakshmi Scheme, Karnataka:

O The benefits of the scheme are restricted to two girl children for below the poverty line (BPL) families.

O After verification of documents, the Women and Child Development Department deposits Rs. 10000 with the LIC of India in the name of the first beneficiary of the family and ₹. 10000 in the name of the second beneficiary of the same family.

O After the completion of 18 years, the elder girl would get a maturity amount of ₹. 34,751and the second girl ₹. 40,918.

O If the girl child falls sick, medical insurance claims up to a maximum of ₹ 25,000/- is provided.

O If a natural death of the insured person takes place, insurance of ₹. 42,500/- is given.

O If the insured person dies in an accident, insurance of ₹.1,00,000 will be given to the family. [87]

Integrated Child Development Scheme:

O Supplementary nutrition and Health education for adolescent girls 11-18years of age and children between 1-6 years of age .[88]

Other initiatives :

O **Meena's World:** Meena, a cartoon character that was later to become a role model, was launched by UNICEF South Asia in 1998 as a 13-part animation series broadcast by both private and public channels such as Doordharshan and All India radio.[89]

Girl Child Observance Days:

O   The Government of India in the year 2009 had declared that January 24 be observed every year as National Girl Child Day.

O   It was on this date in 1966 Smt Indira Gandhi became the first woman Prime Minister of India.[90]
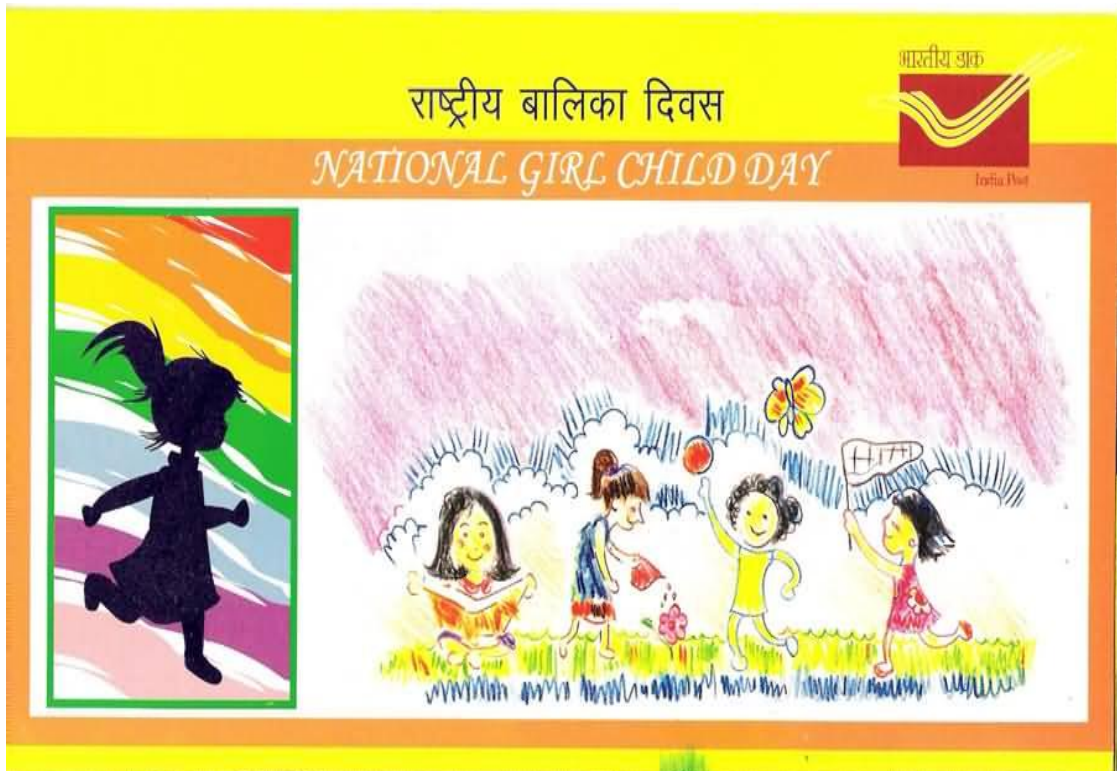
International Day of the Girl Child:

o On December 19, 2011, a historic milestone for girls' rights was achieved when the UN General Assembly formally declared October 11 as the International Day of the Girl Child.[91]

MATERIALS AND METHODS

Study area: Rural areas of Bijapur district

Study design: Cross sectional study

Study technique: Interview technique.

Study period:

1st January 2013- 30th November 2013 – Data collection

1st December 2013 - September 2014 - Analysis and Documentation.

Sample size: According to the National Family Health Survey 3,[13] the prevalence of gender bias in Immunization was 3.8%, in health care during illness (ARI) was 5.9%, Breastfeeding was 0.3%, underweight less than 2SD was 1.2%.

From the above, calculating the average prevalence of gender bias was around 2.8%.

Considering the prevalence of gender bias as 2.8% at 95% of confidence interval and at $\pm$ 1 margin of error, the sample size was 1045 using the statistical formula

$$n = \frac{(2SD)^2 \times p \times q}{d^2}$$

SD= Standard Deviation
p =Prevalence of Gender Bias
q = (100 – p)
d = margin of error

$$= \frac{(1.96*1.96)* 2.8 * 97.2}{(\pm 1)^2}$$

$$= 1045$$

Data collection:

Multiphase sampling technique was used as follows . Bijapur district has FIVE taluks. TWO primary health centers were selected from each taluk by using Simple Random Sampling (lottery method). A total of TEN primary health centers were selected.

From each of these primary health center using Simple random sampling (lottery method) ONE village was selected for the study. So totally TEN villages across the Bijapur district was selected for the purpose of study.

Bijapur district

⇩

FIVE taluks

SRS ⇩

TWO PHC /taluk

SRS ⇩

ONE village/PHC

PROPORTIONATE SAMPLING ⇩

Samples
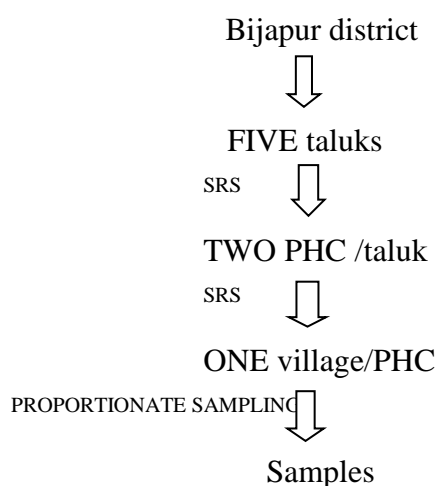
Each village was visited in the first week of every month from January 2013 to November 2013 . Data was collected by interview technique from the mothers after explaining the purpose of the study and obtaining the consent in a pretested predesigned and semi structured questionnaire.

Proportionate sample size for the corresponding village was calculated based on the 0-5 year population of that village. Equal number of boys and girls were selected from every village based on the sample size obtained .

A landmark (temple, school, panchayat office etc) in the center of the village was identified. After selecting the street randomly near the landmark , starting from the right side of the street house to house visit was done and data was collected from the household who had children less than five years of age till the predetermined sample size subjects was obtained

LIST OF VILLAGE SELECTED FOR THE STUDY

Sl No	District	Taluk	PHC	Village	Total Population	0 - 5 year	proportianate sampling (n)
1	Bijapur	Bijapur	Thikota	Babanagara	4860	680	83
2	Bijapur	Bijapur	Honnutagi	Shivanagi	9441	1321	161
3	Bijapur	B.Bagewadi	Huvin Hippargi	Narasalagi	4462	625	76
4	Bijapur	B.Bagewadi	Kolar	Kholara	14953	2093	255
5	Bijapur	Indi	Zalaki	Anjutagi	5238	733	89
6	Bijapur	Indi	Thamba	Hirerogi	5566	779	95
7	Bijapur	Muddebihal	Tangadgi	Kolur	3370	472	58
8	Bijapur	Muddebihal	Dhavalgi	Basarakoda	4775	669	82
9	Bijapur	Sindgi	Devar Hippargi	Devur	3669	514	63
10	Bijapur	Sindgi	Moratagi	Kakkalmeli	4835	677	83
	TOTAL				**56773**	**8563**	**1045**

MAP SHOWING SELECTED VILLAGES
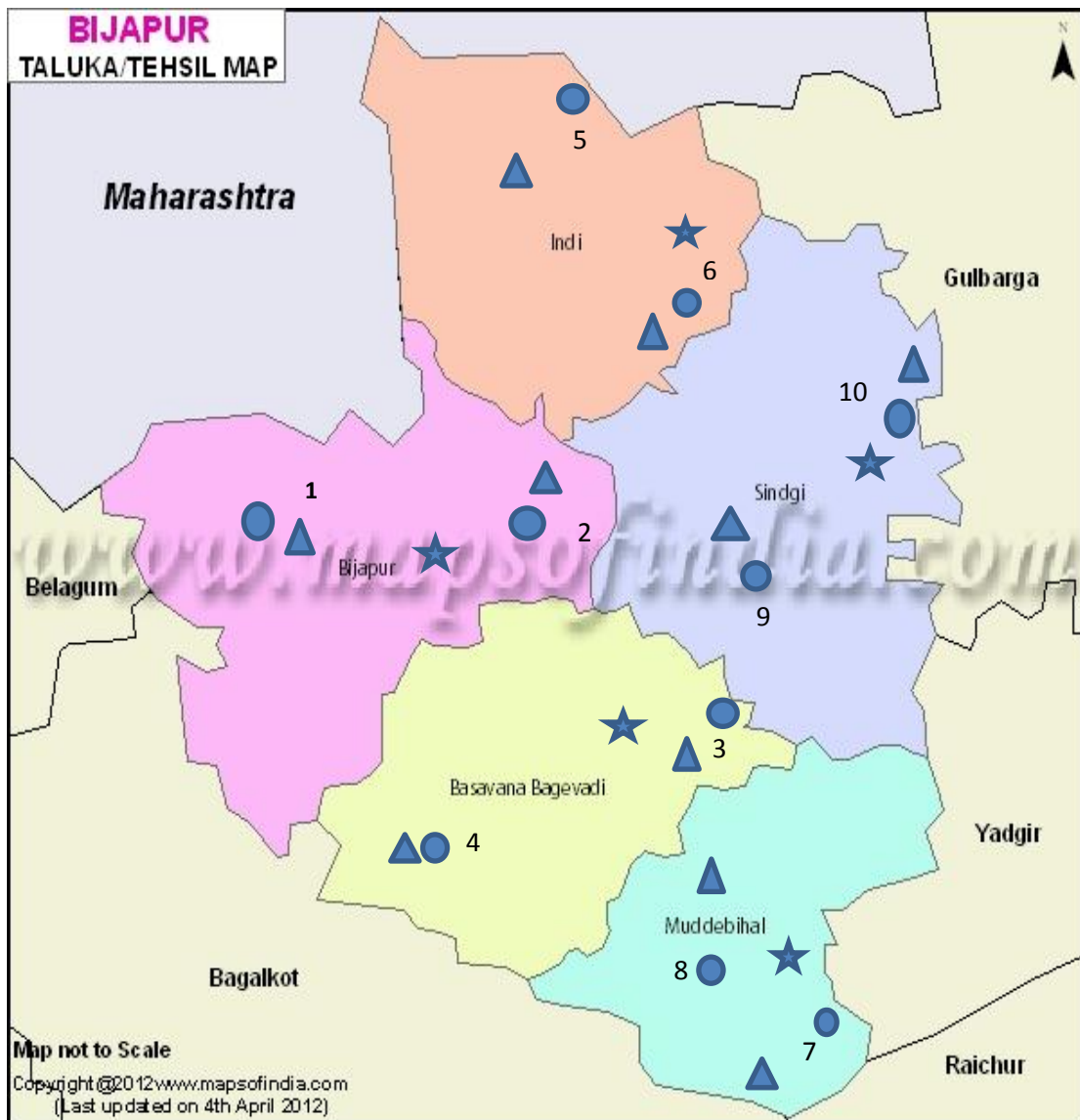
Analysis:

The study results are analyzed in five section.

Section I: Socio-Demographic profile of the under five children and their parents.

Section II: Gender difference in Breastfeeding Practices.

Section III : Gender difference in Immunization status of the children.

Section IV: Gender difference in Health care Seeking Behavior.

Section V: Gender difference in Nutritional status of the children.

Ethical clearance :

The study protocol was submitted to ethical committee of Shri B M Patil Medical College and clearance was obtained before commencement of the study.

Socio Economic Status :

The per capita income was calculated using Modified B G Prasad's classification. [92]

Socio class	Prasad's classification 1961 (per capita income in rupees per month)	Modified Prasad's Classification in study Period (2013-14)
I	100 and above	5296 and above
II	50-99	2648 – 5295
III	30-49	1589-2647
IV	15-29	794-1588
V	Below 15	Less than 794

Class I is considered as upper class, Class II & III as middle class , Class IV & V as lower class .

Classification of malnutrition :

WHO growth charts (2006) [93]was used to classify the children based on Weight for age (underweight), Height for age (stunted), Weight for Height (wasting).

Normal -Between + 2 SD to − 2SD

Mild to Moderate malnourished : Between -2SD to − 3SD

Severe malnourished : Below − 3 SD.

Calculation of Dropout rate of vaccination :[94]

Dropout rate of
Vaccine X 1 to X 3   = Dose of X 1 administered -Doses of X 3administered*100
                                                Dose of X 1 administered.

Statistical analysis:

SPSS V 16 (Statistical package for social sciences) was used to analyze the data . Data was presented in the form of Percentages, Mean, Standard deviation, graphs and figures . Chi square test, Z test, chi- square test for trend and Fishers Exact test was used to analyze the association between the variables. p value of < 0.05 was considered to be significant at 95 % confidence interval.

INCLUSION CRITERIA:

1) Parents who were willing to participate in the study.

2) Parents who were the permanent residents of study area

3) If the parents had more than one under five children then the youngest child in the family will be considered for the study.

4) Mothers who had full time normal vaginal delivery.

EXCLUSION CRITERIA

1) Parents who do not have children less than five children.

2) Parents who are not willing to participate.

3) Parents who are not permanent residents of the study area

4) Children suffering from chronic diseases like TB, HIV etc

5) Children born with congenital deformities.

RESULTS

SECTION I : SOCIO DEMOGRAPHIC PROFILE

Table 1: Socio Demographic Profile of the Under Five Children

		Frequency (n=1045)	Percentage (%)
Age group (in months)	0-11	197	18.9
	12-23	207	19.8
	24-35	262	25.1
	36-47	232	22.2
	48-59	147	14.0
Religion	Hindu	798	76.4
	Muslim	243	23.2
	Others	4	0.4
Sex	Male	522	50
	Female	523	50
SES	1	89	8.5
	2	141	13.5
	3	317	30.4
	4	411	39.3
	5	87	8.3
Birth order	1	449	43
	2	461	44.1
	3	129	12.3
	4	6	0.6
Type of family	Nuclear	512	49.0
	Joint	533	51.0

Figure 1 : AGE WISE DISTRIBUTION OF CHILDREN

AGE WISE DISTRIBUTION OF CHILDREN
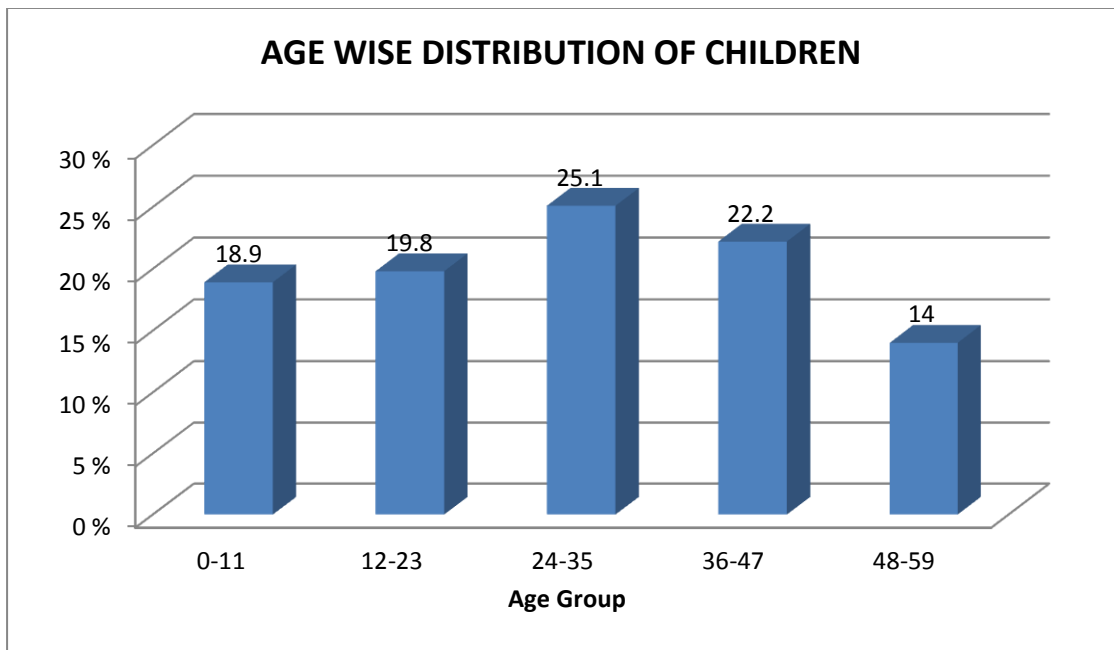
Figure 2 : Religion wise distribution of children

RELIGION WISE DISTRIBUTION OF CHILDREN
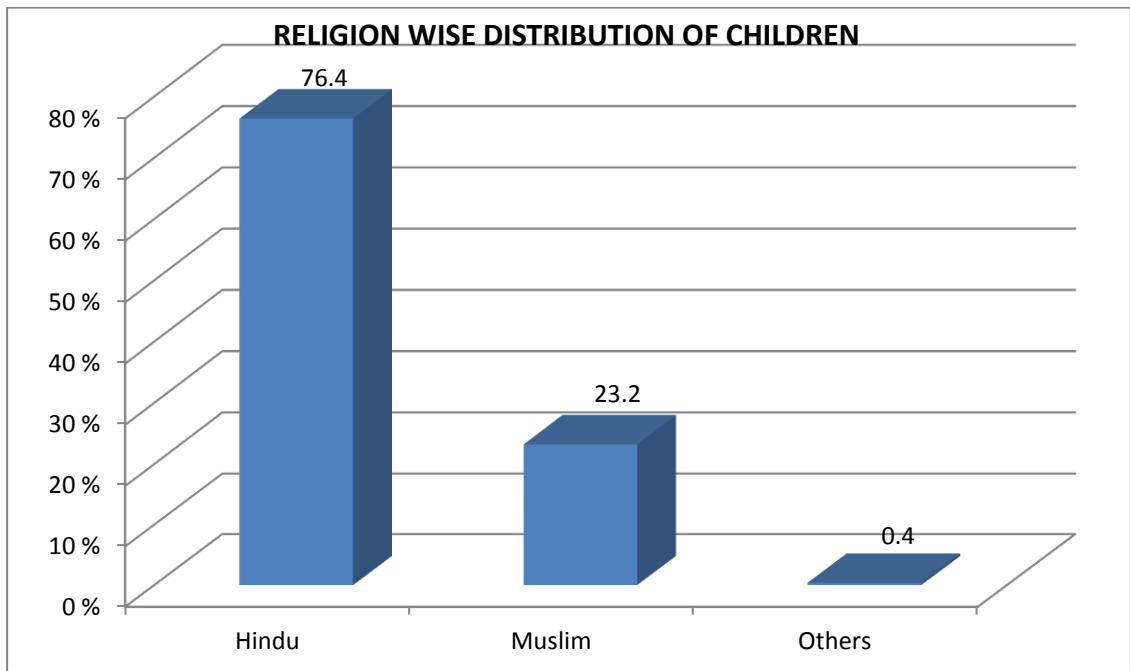
Among the Under five children who participated in our study 197 (18.9%) were less than 1 years of age, 207 (19.8 %) were between the age group of 12-23 months, 262 (25.1%) in the age group of 24-35 months, 232 (22.2 %) were in the age group of 36-47 months, 147 (14%) in the age group of 48-59 months.

The mean age of children in our study was 2.87 years ($\pm$1.26).

Majority 798 (76.4%) of the participants belong to Hindu and 243(23.2%) Muslim, 4 (0.4%) belonged to Christian religion. As data was collected after doing gender match 522 (50%) boys and 523(50%) girls were included in the study.

Around 411 (39.3%) of the study participants belonged to class IV, 87(8.3%) in class V, 317(30.4%) in class III, 141(13.5%) in class II, 89 (8.5%) in class I according to Revised B G Prasad Classification.

In our study 512 (49%) belonged to nuclear family and 533(51%) to joint family in our study.

Table 2: Socio Demographic Profile Of Mothers

		Frequency (n=1045)	Percentage (%)
Age group	< 25	297	28.4
	25-29	487	46.6
	30-34	224	21.4
	>35	37	3.6
Education	Illiterate	319	30.5
	1-7thStd	366	35.1
	7-10thStd	249	23.8
	PUC and Above	111	10.6
Occupation	Housewife	870	83.3
	Agriculture	99	9.5
	Labour	53	5.0
	Govt job	9	0.9
	Others	14	1.3

Majority 487(46.6%) of the mothers belonged to the age group between 25-29 years, 297(28.4%) of the mothers were aged less than 25 years, 224(21.4%) were in the age group of 30-34 years. Only 37 (3.6%) were aged above 35 years. 319 (30.5%) mothers were illiterate, 615 (58.9%)   mothers had education till matriculation. 97 (9.3%) had attended PUC and only 14(1.3%) had a degree with them.

Around 870(83.3%) of the respondents in our study constituted housewives, 99(9.5%) agriculture workers, 53(5%) were working as laborers, 9 (0.9 %) were working as government servants and 14 (1.3%) others .

Table 3 : Socio Demographic Profile of Fathers .

		Frequency (n=1045)	Percentage (%)
Age group	< 25	44	4.2
	25-29	352	33.7
	30-34	327	31.3
	>35	322	30.8
Education	Illiterate	154	14.7
	1-7th std	203	19.4
	7-10th std	332	31.8
	PUC	244	23.3
	Degree	112	10.7
Occupation	Agriculture	434	41.5
	Labor	178	17.0
	Driver	73	7.0
	Business	241	23.1
	Govt job	91	8.7
	Others	28	2.7

Of the total 1045 respondents 396 (37.9%) fathers were aged less than 30 years and 649 (62.1%) were aged above 30 years. 154(14.7%) were illiterates, 535 (51.2%) had a formal education till tenth standard , 244 (23.3%) till PUC and 112 (10.7%) were degree holders.

Around 434 (41.5%) were agriculturist ,241(23.1%) were doing business, 178(17%) were laborers, 73(7%) were drivers , 91 (8.7%) were government servants and 28(2.7%) belonged to others categories.

SECTION II: RESULTS ON GENDER BIAS IN BREASTFEEDING PRACTICES (N = 404)

Data regarding the knowledge and practice towards breastfeeding and weaning practices was elicited from the respondents who had children less than 2 years of age in order to reduce recall bias in the study. As a result out of 1045 under five children, in our study data was collected from 404 children who aged less than or equal to two years at the time of interview. Out of 404 children 212(52.5%) children were boys and 192 (47.5%) were girls.

Table 4: Distribution of Children based on Breast feeding practices

Breastfeeding		Gender				Total
		Male	%	Female	%	
Prelacteal administered		86	40.6	106	55.2	192(47.5%)
Exclusively Breastfeeding	Up to 6 months	88	41.5	52	27.1	140(34.7%)
	=> 6months	38	17.9	34	17.7	72((17.8%)
	Total	**212**	100	**192**	100	**404(100)**
Chi square= 10.6 df = 2 p=0.005						

In our study prevalence of prelacteal administration was 47.5% (40.6% for male and 55.2% for females). The association of prelacteal feeds with gender was statistically significant.

Exclusive breastfeeding was practiced for 212 (52.5%) of children. 88(41.5%) Boys and 52 (27.1%) girls were exclusively breastfed for up to six months respectively. There was statistically significant association with the gender.

Table 5: Types of Prelacteal Feeds given to children

Type of Prelacteal feeds	Gender				Total (n=192)
	Male (n=86)	%	Female (n=106)	%	
Sugar water	47	54.7	49	46.2	96(50)
Honey	24	27.9	44	41.5	68(35.4)
Cow milk	3	3.5	4	3.8	7(3.6)
Sugar water +honey	8	9.3	9	8.5	17(8.8)
Sugar water + cow milk	2	2.3	0	0	2(1.1)
Honey + cow milk	2	2.3	0	0	2(1.1)

Of the prelacteal feeds given sugar water (50%) was most common, followed by honey (35.4%)

Graph 3: Distribution of Children based on Prelacteal Feeds Administration

60
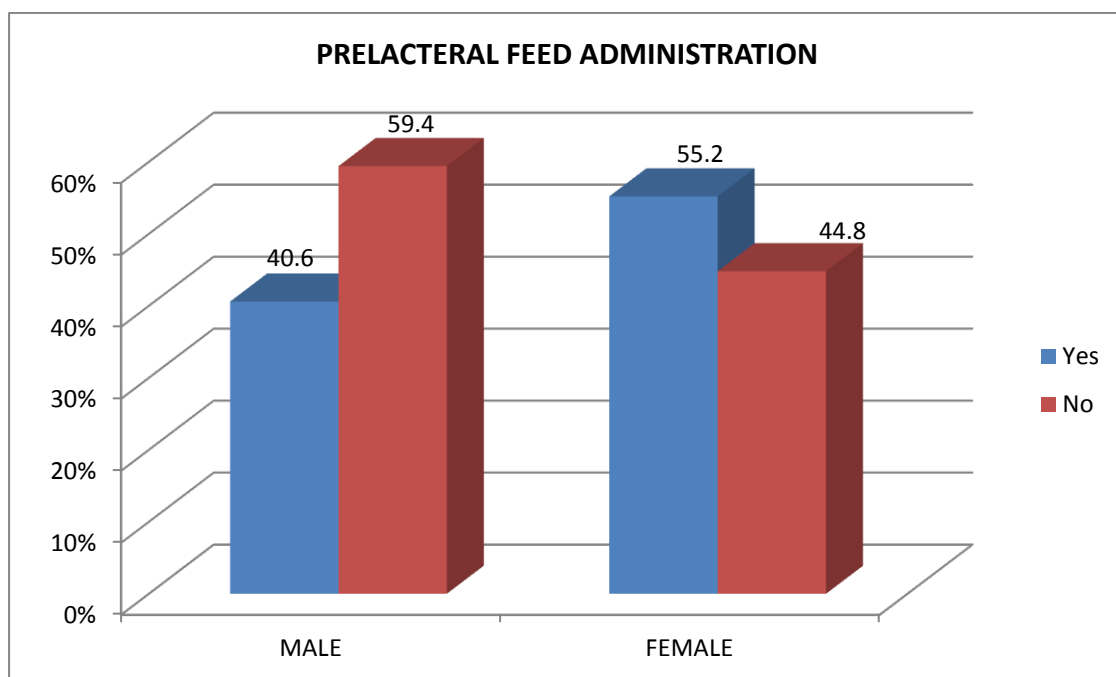
Graph 4 : Distribution of children based on Initiation of Breastfeeding
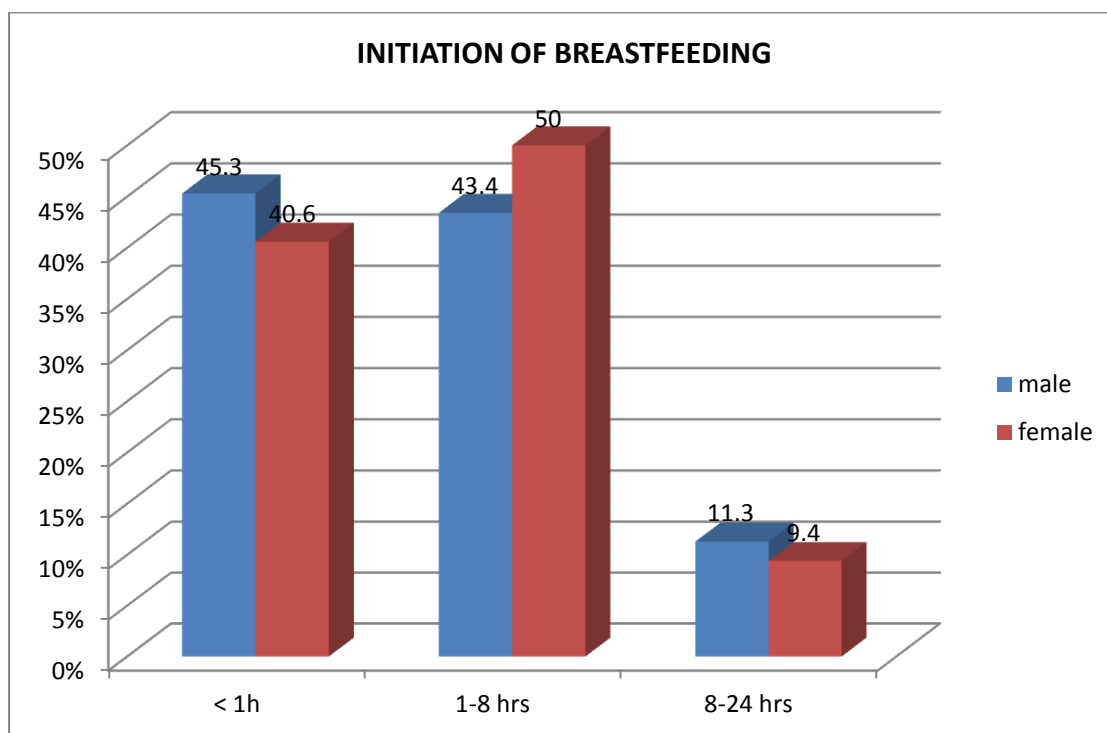
Table 6 :Distribution of Children based on Initiation of Breastfeeding.

Initiation of	Gender				
Breastfeeding	Male	%	Female	%	Total
< 1h	96	45.3	78	40.6	174(43.1)
1-8 hrs	92	43.4	96	50	188(46.5)
8-24 hrs	24	11.3	18	9.4	42 (10.4)
Total	**212**	**100**	**192**	**100**	**404 (100)**
Chi square =1.82 df= 2 p= 0.403					

In our study 174 (43.1%) new born were breastfed in less than an hour of birth { 96(45.3%) male and 78(40.6%) females }.The difference was statistically not significant

Table 7 : Distribution of Children based on Weaning *

Weaning started	Gender				Total
	Male	%	Female	%	
Less than 6 months	101	54.5	28	21.7	129(41.1)
6 months& above	84	45.5	101	78.3	185(58.9)
Total	**185**	**100**	**129**	**100**	**314(100)**
Pooled χ2 = 34 df= 1 p= 0.000					

*N= 314 (excluding 90 infants below 5 months)

Weaning was started for101 (54.5%) male and 28 (21.7%) female children within 6 months of age. The association was found to be statistically significant. Rice items , bread and biscuits were the weaning food among both the gender.

Table 8: Distribution of Children regarding Duration of Breastfeeding.

Breast feeding duration	Gender				Total
	Male	%	Female	%	
<6months	0	0	1	0.5	1(0.2)
6-12 months	59	27.8	36	18.8	95(23.5)
12-18 months	146	68.9	151	78.6	297(73.5)
>18 months	7	3.3	4	2.1	11(2.7)
Total	**212**	**100**	**192**	**100**	**404(100)**
Pooled χ2 = 4.97 df= 2 p= 0.08					

Only 1 (0.5%) girl child was stopped breastfeeding completely before the age of six months as secretion of breast milk stopped completely. 146(68.9%) boys and 151(78.6%) girls were breastfed till 18 months of the age. There was no statistical significant association.

Table 9:Analysis of Distribution of Children based on Mother's education and Initiation of Breastfeeding.

Mother education		Illiterate		Till 7th		7-10 Std		PUC & above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Total
Initiation of breast feeding	< 1 hr	16 (32%)	13 (20.9%)	42 (45.1%)	23 (43.4%)	34 (59.6%)	30 (60%)	4 (33.3%)	12 (44.5%)	174 (43.1%)
	1-8 hrs	28 (56%)	43 (69.4%)	41 (44.1%)	24 (45.3%)	23 (40.4%)	20 (40%)	0 (0%)	9 (33.3%)	188 (46.5%)
	8-24 hrs	6 (12%)	6 (9.7%)	10 (10.8%)	6 (11.3%)	0 (0%)	0 (0%)	8 (66.7%)	6 (22.2%)	42 (10.4%)
	Total	50 (100)	62 (100)	93 (100)	53 (100%)	57 (100%)	50 (100%)	12 (100%)	27 (100%)	404 (100%)
		$\chi2$=2.22 df =2 p= 0.33		$\chi2$= 0.04 df=2 p= 0.97		pooled $\chi2$=0.0013 df=1 p= 0.971		Pooled $\chi2$ =7.13 df=1 p= 0.008		

In Children of mothers who are illiterate : Out of the total 50 male and 62 Female children , 16 (32%) males and 13 (20.9%) females were initiated breastfeeding within one hour after birth. 28 (56%) boys and 43 (69.4%) females were breastfed in the span of 1-8 hours. 6 (12%) males and 6 (9.7%) females were breastfed within 24 hrs . There was no statistically significant association in this group.

In Children of mothers who are educated till 7th standard : Out of 93 male and 53 female children, 42(45.1%) males and 23(43.4%) females were initiated breastfeeding within 1 hour of birth . 41(44.1%) males and 24(45.3%) females breastfeeding was started within 1-8 hours after birth. 10(10.8%) males and 6(11.3%) females were breast fed after 8 hrs of birth. There was no statistically significant association in this group.

In Children of mothers who are educated between 7th standard to 10th standard: Out of 57 male and 50 females children ,34(59.6%) of males and 30 (60%) females were initiated breastfeeding within 1 hour of birth . 23(40.4%) males and 20(40%) females breastfeeding were initiated within 1-8 hours after birth. There was no statistically significant association in this group.

In Children of mothers who are educated till PUC and above : Out of 12 male and 27 female children, 4(33.3%) males and 12(44.5%) females were initiated breastfeeding within 1 hours of birth. 9 (33.3%) of girls were given breast milk within 1-8 hrs after birth. 8(66.7%) males and 6(22.2%) females were administered breast milk after 8 hrs of birth. There was significant statistical association in this group.

On applying chi square trend test the initiation of breastfeeding and mothers education was found to be statistically not significant for males (p = 0.09) and significantly associated with females (p =0.002).

Table 10:Analysis of Distribution of Children based on Mother's Age and Initiation of Breastfeeding

Mother education		<25 years		25-30 years		30-35 years		>35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Initiation of breast feeding	< 1 hr	46 (48.9%)	25 (48.1%)	39 (44.3%)	40 (38.8%)	9 (37.5%)	12 (33.3%)	2 (33.3%)	1 (100%)	**174 (43.1%)**
	1-8 hrs	35 (37.2%)	15 (28.8%)	38 (43.2%)	57 (55.4%)	15 (65.5%)	24 (66.7%)	4 (66.7%)	0 (0%)	**188 (46.5%)**
	8-24 hrs	13 (13.9%)	12 (23.1%)	11 (12.5%)	6 (5.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	**42 (10.4%)**
	Total	**94 (100%)**	**52 (100%)**	**88 (100%)**	**103 (100%)**	**24 (100%)**	**36 (100%)**	**6 (100%)**	**1 (100%)**	**404 (100%)**
		$\chi2 = 2.36$ df= 2 p= 0.30		$\chi2 =4.14$ df= 2 p= 0.12		Pooled $\chi2 =0.11$ df = 1 p = 0.74		Fishers exact test p= 0.42		

In Children of mothers who are aged less than 25 years of age : Out of the total 94 males and 52 females children , 46(48.9%) males and 25(48.1%) females were breastfed within the span of one hour after delivery.35(37.2%)males and 15(28.8%) females had breast milk in the span of 1-8 hours after delivery.13(13.9%) males and 12 (23.1%) females were breastfed after 8 hours of birth. The association was found to be statistically not significant.

In Children of mothers who are aged between 25-29 years of age : Out of the total 88 males and 103 females children, 39 (44.3%) males and 40(38.8%) females were breastfed within the span of one hour after delivery.38(43.2%) males and 57(55.4%) females had breast milk in the span of 1-8 hours after delivery.11(12.5%) males and 6 (5.8%) females were breastfed after 8 hours of birth. The association was found to be statistically not significant.

In Children of mothers who are aged between 30-35 years of age : Out of the total 24 males and 36 females children , 9(37.5%) males and 12(33.3%) females were breastfed within the span of one hour after delivery.15(65.5%) males and 24(66.7%) females had breast milk in the span of 1-8 hours after delivery. The association was found to be statistically not significant.

In Children of mothers who are aged above 35 years of age : Out of the total 6 males and 1 females children whose mother aged above 35 years , 2 (33.3%) males and 1(100%) females was breastfed within the span of one hour after delivery.4(66.7%) males had breast milk in the span of 1-8 hours after The association was found to be statistically not significant.

On applying chi square trend test the association between, initiation of breastfeeding and mother s age was found to be statistically not significant for both males (p = 0.81) and females (p =0.67).

Table 11:Analysis of Distribution of Children based on Type of Family and Initiation of Breastfeeding

Type of family		Nuclear		Joint		Total
		Male (%)	Female (%)	Male (%)	Female (%)	
Initiation of Breast Feeding	< 1hr	51 (56%)	48 (47.5%)	45 (37.2%)	30 (33%)	174 (43.1%)
	1-8 hrs	38 (41.8%)	50 (49.5%)	54 (44.6%)	46 (50.5%)	188 (46.5%)
	8-24 hrs	2 (2.2%)	3 (3%)	22 (18.2%)	15 (16.5%)	42 (10.4%)
	Total	91 (100%)	101 (100%)	121 (100%)	91 (100%)	404 (100%)
		Pooled χ2 =1.39 df = 1 p= 0.23		χ2 = 0.732 df= 2 p= 0.700		

In our study out of 91 males and 101 females belonging to nuclear family, 51 (56%) male and 48(47.5%) females had initiated breastfeeding in the span of one hour after the delivery. 38(41.8%) males and 50(49.5%) females were breastfed in the span of 1-8hrs .2(2.2%) males and 3(3%) females were breastfed after 8 hours of delivery. There was no significant statistical association in the group.

Out of the 121 males and 91 females belonging to joint family, 45(37.2%) males and 30(33%) females had initiated breast milk to the children within one hour after dlivery.54(44.6%) males and 46(50.5%) females were administrated breast milk in the duration of 1-8 hours after delivery.22(18.2%) males and 15(16.5%) females were given breast milk after eight hours of delivery. There was no significant statistical association in the group.

Table 12:Analysis of Distribution of Children based on Type of Family and Prelacteal Administration.

Type of family		Nuclear		Joint		Total
		Male (%)	Female (%)	Male (%)	Female (%)	
Prelacteal feeds	Yes	26 (28.6%)	62 (61.4%)	60 (49.6%)	44 (48.4%)	**192 (47.5%)**
	No	65 (71.4%)	39 (38.6%)	61 (50.4%)	47 (51.6%)	**212 (52.5%)**
	Total	**91 (100%)**	**101 (100%)**	**121 (100%)**	**91 (100%)**	404 (100%)
		$\chi 2 = 20.76$ df= 1 p= 0.000		$\chi 2 = 0.032$ df= 1 p= 0.85		

In our study out of 91 males and 101 females belonging to nuclear family , 26(28.6%) male and 62(61.4 %) females were administered with prelacteal feeds. The association was found to be statistically significant in this group.

Out of the 121 males and 91 females belonging to joint family ,60(49.6%) males and 44(48.4%) female children were administered with prelacteal feeds soon after birth and the association was found to be statistically not significant.

Table 13: Analysis of Distribution of Children based Mother's Education and Exclusive Breastfeeding(n=212)*

Mother education		Illiterate		Till 7thStd		7th- 10thStd		PUC and above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Exclusive breastfed	< 6 months	19 (73.1%)	6 (31.6%)	38 (61.3%)	20 (83.3%)	26 (81.2%)	14 (51.9%)	5 (83.3%)	12 (75%)	**140 (66%)**
	>= 6 months	7 (26.9%)	13 (68.4%)	24 (38.7%)	4 (16.7%)	6 (18.8%)	13 (48.1%)	1 (16.7%)	4 (25%)	**72 (33%)**
	Total	**26 (100%)**	**19 (100%)**	**62 (100%)**	**24 (100%)**	**32 (100%)**	**27 (100%)**	**6 (100%)**	**16 (100%)**	**212 (100%)**
*n=212 (children who didn't receive prelacteal feeds)		$\chi2 = 7.65$ df= 1 p= 0.006		$\chi2=3.83$ df =1 p= 0.05		$\chi2=5.80$ df= 1 p=0.016		Fishers Exact test p= 1		

In Children of mothers who are illiterate : Out of the 26 males and 19 females, 19 (73.1%) males and 6(31.6%) females were given exclusive breastfeeding for lesser than 6 months of duration. Whereas 7 (26.9 %) males and 13(68.4%) females were given exclusive breast milk for more than six months. The association was found to be statistically significant.

In Children of mothers who are educated till 7[th]standard : Out of 62 males and 24 females   children ,38 (61.3%) males and 20 (83.3%) females had exclusive breastfeeding for less than six months of duration. 24 (38.7 %) males and 4 (16.7 %) females were given exclusive breast milk for more than six months of duration. The association was found to be statistically significant.

In Children of mothers who are educated between 7th to 10th standard : Out of 32 males and 27 females children , 26 (81.2 %) males and 14 (51.9 %) females had exclusive breastfeeding for less than six months of duration. 6 (18.8 %) males and 13 (48.1 %) females were given exclusive breast milk for more than six months of duration. The association was found to be statistically significant.

In Children of mothers who are educated till PUC and above : Out of 6 males and 16 females ,5 (83.3 %) males and 12 (75 %) females were exclusive breastfed for less than six months of duration.1 (16.7 %) males and 4 (25 %) females were given exclusive breast milk for more than six months of duration. However the association was found to be statistically not significant.

Table 14: Analysis of Distribution of Children based Mother's Age and Exclusive Breastfeeding .(n = 212)

Mother age		< 25 years		25-29 years		30-35 years		>35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Exclusive Breastfed	< 6 months	39 (60.9%)	10 (52.6%)	36 (76.6%)	39 (69.6%)	11 (84.6%)	3 (27.3%)	2 (100%)	0 (0%)	**140 (66%)**
	>= 6 months	25 (39.1%)	9 (47.4%)	11 (23.4%)	17 (30.4%)	2 (15.4%)	8 (72.7%)	0 (0%)	0 (0%)	**72 (33%)**
	Total	**64 (100%)**	**19 (100%)**	**47 (100%)**	**56 (100%)**	**13 (100%)**	**11 (100%)**	**2 (100%)**	**0 (0%)**	**212 (100%)**
*n=212 (children who didn't receive prelacteal feeds)		χ2 =0.41 df= 1 p= 0.51		χ2 = 0.624 df =1 p= 0.43		Fishers exact test p = 0.011				

In Children of mothers who are aged less than 25 years of age : Out of total 64 male and 19 female children, 39(60.9%) male and 10(52.6%) female were exclusively breastfed for less than six months . 25(39.1%) males and 9(47.4%) females were exclusive breastfed for greater than 6 months . There was no significant statistical association.

In Children of mothers who are aged between 25-29 years of age : Out of total 47 male and 56 female children,36 (76.6%) males and 39 (69.6 %) female were exclusively breastfed for less than six months .11 (23.4 %) males and 17 (30.4 %) females were exclusive breastfed for greater than 6 months . There was no significant statistical association this group.

In Children of mothers who are aged between 30-35 years of age : Out of total 13 male and 11 female children ,11 (84.6%) males and 3(27.3%) female were exclusively breastfed for less than six months .2 (15.4%) males and 8 (72.7 %) females were exclusively breastfed for greater than 6 months . There was significant statistically association this group.

In Children of mothers who are aged more than 35 years of age   : There were only 2 male children in this group and both the children were exclusively breastfed for less than 6 months .

SECTION III :GENDER BIAS IN IMMUNIZATION

The immunization status was assessed for the children between the age group of 12-23 months. Out of 1045 children , 207 were in the age group of 12-23 months 109(52.7 %) male and 98(47.3%) female children were present in the study.

Table 15: Distribution Of Children Based On The Status Of Immunization

Status of Immunization	Sex				Total
	male	%	female	%	
Fully immunized	75	68.8	56	57.2	131(63.3%)
Partially immunized	33	30.3	41	41.9	74(35.7%)
Unimmunized	1	0.9	1	0.9	2(1%)
Total	109	100	98	100	207(100%)
Pooled Chi square = 3.02 df =1 p= 0.082					

Out of the total 207 Children assessed for status of immunization in our study , 131 (63.3%) were fully immunized, 74 (35.7 %) were partially immunized and 2 (1%) unimmunized .

The percentage of male children that were fully immunized was 68.8 %, 30.3 % were partially immunized and 0.9 % had received no immunization. The percentage of fully immunized among female children was found to be 57.2 %, 41.9 % were partially immunized and 0.9 % were unimmunized. The percentage of fully immunized male children was higher when compared to females and the association was found to be statistically not significant.

Graph 5: Distribution Of Children Based On The Status Of Immunization
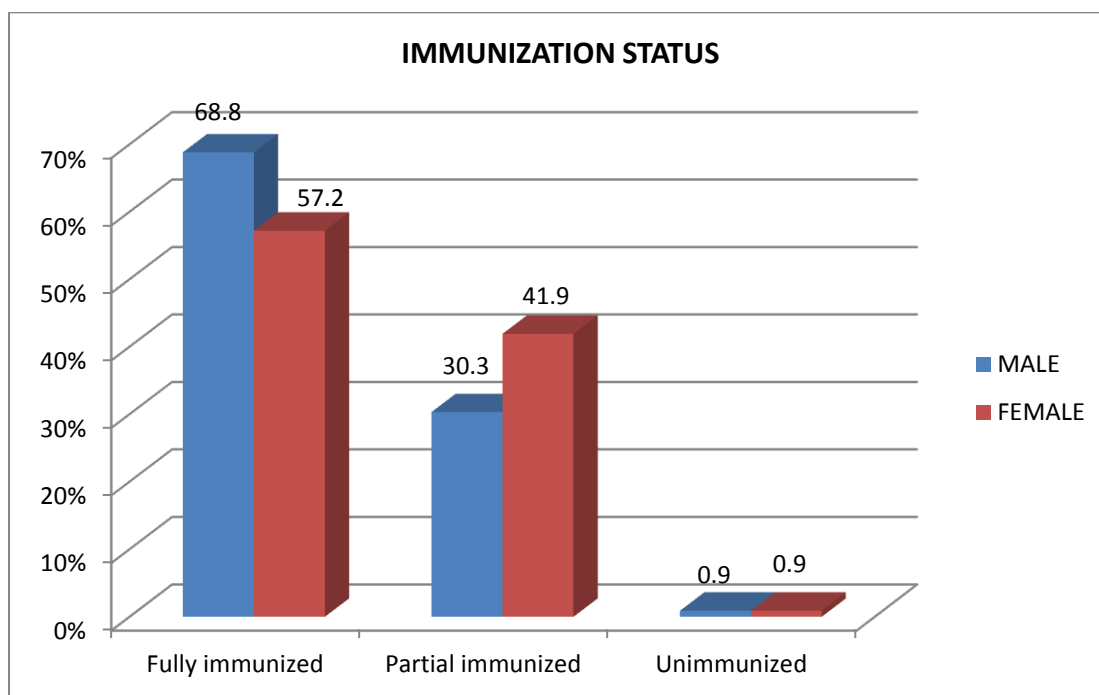
Table 16:Distribution Of Children Based On Immunization card

Vaccination Card	Sex				Total
	male	%	female	%	
Present	91	83.5	69	70.4	**160(77.3%)**
Absent	18	16.5	29	29.6	**47(22.7%)**
Total	**109**	**100**	**98**	**100**	**207(100%)**
Pooled Chi square = 5.02 df =1 p= 0.02					

In our study nearly 160 (77.3%) infants (83.5% males and 70.4 females) had immunization card.

Graph 6 : Distribution Of Children Based On Availability of vaccination card

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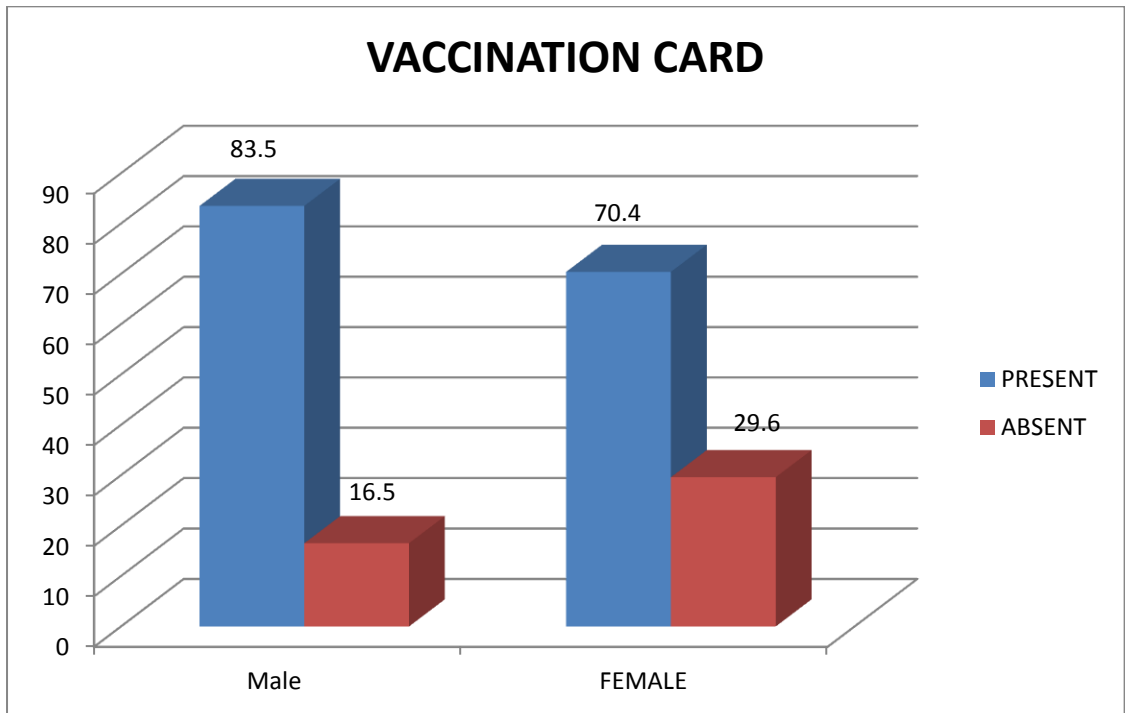
Table 17:Distribution of Children based on Immunization status against Individual vaccines.

Sl no	Vaccines	Male (n= 109)		Female (n= 98)		Total (n = 207)		Test
		N	%	N	%	N	%	
1	BCG	98	89.9	86	87.8	184	88.9	Z= 0.49 P= 0.62
2	OPV 1	108	99.1	98	100	206	99.5	Z= -0.95 P= 0.34
3	OPV 2	100	91.7	94	95.9	194	93.7	Z= -1.23 P= 0.21
4	OPV 3	88	80.7	70	71.4	158	76.3	Z= 1.57 P= 0.11
5	DPT 1	108	99.1	93	94.9	201	97.1	Z= 1.79 P= 0.07
6	DPT 2	99	90.8	88	89.8	187	90.3	Z= 0.25 P= 0.80
7	DPT 3	90	82.5	69	70.4	159	76.8	Z=2.06 P= 0.03*
8	HEP B 1	101	92.7	81	82.1	182	87.9	Z= 2.20 P= 0.02*
9	HEP B 2	89	81.7	78	79.6	167	80.7	Z= 0.37 P= 0.71
10	HEP B 3	75	68.8	56	57.1	131	63.3	Z= 1.73 P= 0.08
11	MEASLES	85	77.9	74	75.5	159	76.8	Z= 0.42 P= 0.67

*significant

In the present study it was observed that the coverage of BCG vaccine was at 88.9% (89.9% for males and 87.8 % for females). The coverage for OPV 3 was 76.3 % (80.7% for males and 71.4 % for females) , DPT 3 was 76.8 % (82.5 % for males

and 70.4% for females) and Hepatitis B 3 was 63.3 % (68.8 % for males and 57.1 %
for females). The coverage for measles vaccines was 76.8 % (77.9 % for males and
75.5 % for females).

The coverage for individual vaccines was found to be slightly higher among males
when compared to female children.

Graph 7: Gender Wise coverage of individual vaccines
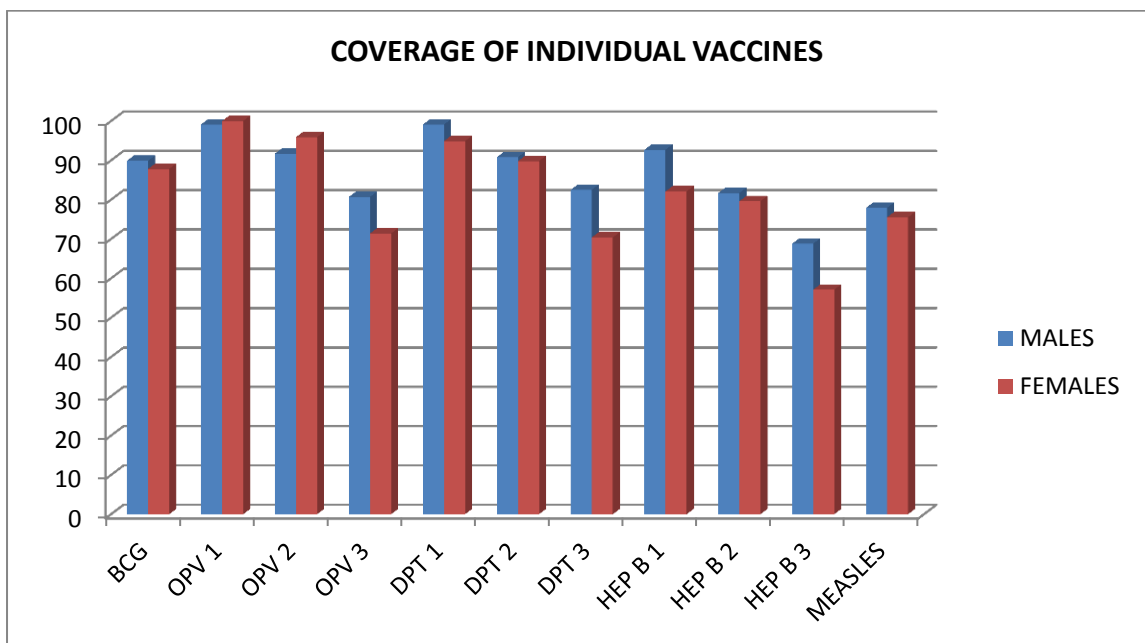
Table 18: Dropout rate of Immunization

Sl no	Dropout Rates	Males (%)	Females(%)	Total (%)
1	BCG to Measles	13.2	13.9	13.6
2	DPT 1 to DPT 3	16.6	25.8	20.9
3	OPV 1 to OPV 3	18.5	28.5	23.3
4	Hep B 1 to Hep B 3	25.7	30.8	28.1

The dropout rate of vaccination for female children was found to be higher than the male children. The dropout rate from BCG to Measles was 13.6% (13.2 % for male and 13.9% for female) . The dropout rate from DPT 1 to DPT 3 was 20.9% (16.6% male and 25.8 % for female). The dropout rate from OPV 1 to OPV 3 was 23.3% (18.5 % for male and 28.5 % for female). The Hep B 1 to Hep B 3 dropout rate was 28.1(25.7 % for male and 30.8 % for female).

Graph 8: Dropout rate of Immunization
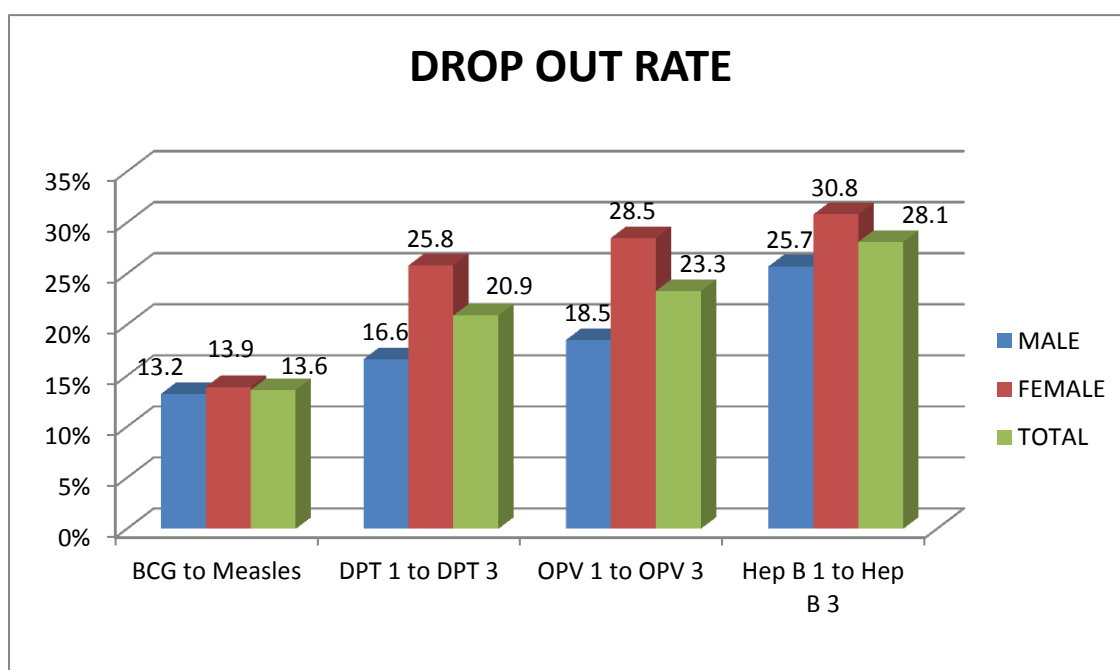
Table 19: Distribution Of Children Based On Socio-economic class and Status Of Immunization

Status of immunization	Upper class		Middle class		Lower class		Total
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Fully immunized	0 (0%)	9 (60%)	40 (71.4%)	22 (59.5%)	35 (66%)	25 (54.4%)	**131 (63.3%)**
Partially immunized	0 (0%)	6 (40%)	16 (28.6%)	15 (40.5%)	17 (32%)	20 (43.4%)	**74 (35.7%)**
unimmunized	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (2%)	1 (2.2%)	**2 (1%)**
Total	**0 (0%)**	**15 (100%)**	**56 (100%)**	**37 (100%)**	**53 (100%)**	**46 (100%)**	**207 (100%)**
			Pooled $\chi 2$ =1.44 df= 1 p=0.23		Pooled $\chi 2$ =1.41 df= 1 p=0.235		

While studying the relationship between socioeconomic status and immunization status, it was observed that proportion of fully immunized children was similar in all the classes.

In Children of who belong to upper socioeconomic class : There were no male children in this group. Among the 15 girls, 9 (60 %) were fully immunized and 6 (40%) were partial immunized. There were no unimmunized children.

In Children of who belong to middle socioeconomic class: Out of the 56 male children, 40 (71.4%) were fully immunized and 16 (28.6%) were partial immunized . Among the 37 female children, 22 (59.5 %) were fully immunized and 15 (40.5 %) were partially immunized. There were no unimmunized children. There was no Significant statistical association in this group.

In Children of who belong to lower socioeconomic class: Out of the 53 male children, 35 (66 %) were fully immunized, 17 (32 %) were partially immunized and 1(2%) was unimmunized. Among the 46 females children ,25 (54.4%) were fully immunized , 20 (43.4%) were partially immunized and 1 (2.2%) was unimmunized . There was no Significant statistical association in this group.

Table 20 : Analysis of Distribution Of Children Based On Mothers Age   and Status Of Immunization

Mother's age		< 25 years		25-29 years		30-35 years		> 35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Status of Immuniz ation	Fully Immunized	32 (55.2%)	19 (73.1%)	32 (84.2%)	27 (49.1%)	9 (100%)	10 (58.8%)	2 (50%)	0 (0%)	131 (63.3%)
	Partially unimmunized	25 (43.1%)	6 (23.1%)	6 (15.8%)	28 (50.9%)	0 (0%)	7 (41.2%)	2 (50%)	0 (0%)	74 (35.7%)
	Unimmunized	1 (1.7%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (1%)
	Total	58 (100%)	26 (100%)	38 (100%)	55 (100%)	9 (100%)	17 (100%)	4 (100%)	0 (0%)	207 (100%)
		Pooled χ2 = 2.41 df= 1 p= 0.12		Pooled χ2 = 12 df= 1 p= 0.001		Fishers exact test P= 0.04				

In Children of mothers who are aged below 25 years of age : out of the total 58 male and 26 female children , 32 (55.2 %) male and 19 (73.1 %) female children were   fully immunized .25 (43.1%)   male and 6 (23.1%) female children were partially immunized. Among the unimmunized children 1 (1.7%) male and 1 (3.8 %) female children were present. There was no Significant statistical association in this group.

In Children of mothers who are aged between 25- 29 years of age : Out of the total 38 male and 55 female children, 32 (84.2%) male and 27 (49.1%) female children were fully immunized. Among the remaining children 6 (15.8%) male and 28 (50.1 %) female children were partially immunized. There were no unimmunized children. There was Significant statistical association in this group.

In Children of mothers who are aged between 30-35 years of age : Out of the 9 male and 17 female children , all the male children (100%) and 10 (58.8%) females were fully immunized.   The remaining 7 (41.2%)   female children were partially immunized. There were no unimmunized children. There was Significant statistical association in this group.

In Children of mothers who are aged above 35 years of age : Out of 4 male children, 2 (50 %) and 2 (50 %) were fully and partially immunized . There was no female child in this group .There were no unimmunized children.

On applying chi square trend test association between mothers age and   status of immunization was found to be statistically not significant for both males (p = 0.07) and females (p =0.31).

Table 21:Analysis of Distribution Of Children Based On Mother's Education and Status Of Immunization

Mother education		Illiterate		Till 7th		7-10 Std		PUC & above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Total
Status of Immunization	Fully immunized	26 (96.3%)	17 (58.6%)	32 (62.7%)	19 (82.6%)	16 (61.5%)	17 (51.5%)	1 (20%)	3 (23.1%)	131 (63.3%)
	Partial immunized	1 (3.7%)	11 (37.9%)	19 (37.3%)	4 (17.4%)	9 (34.6%)	16 (48.5%)	4 (80%)	10 (76.9%)	74 (35.7%)
	Unimmunized	0 (0%)	1 (3.4%)	0 (0%)	0 (0%)	1 (3.8%)	0 (0%)	0 (0%)	0 (0%)	2 (1%)
	Total	27 (100%)	29 (100%)	51 (100%)	23 (100%)	26 (100%)	33 (100%)	5 (100%)	13 (100%)	207 (100%)
		Pooled $\chi2$ =11.1 df= 1 p= 0.001		Pooled $\chi2$ = 2.92 df= 1 p= 0.088		Pooled $\chi2$ =0.593 df= 1 p= 0.44		Fishers exact test P=1.00		

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In Children of mothers who are illiterate: Out of the total 27 male and 29 female children , 26 (96.3%) male and 17(58.6%) female children were fully immunized . Among the partially immunized children 1 (3.7%) males and 11 (37.9%) females were present . One female child was unimmunized. There was Significant statistical association in this group.

In Children of mothers who are educated till 7th standard : Out of the total 51 male and 23 female children , 32 (62.7%) male and 19 (37.3%) female children were fully immunized . 19 (82.6%) male and 4 (17.4%) female children were partially immunized . There were no unimmunized children among both male and female children. There was no Significant statistical association in this group.

In Children of mothers who are educated between 7th standard to 10th standard : Out of the total 26 male and 33 female children, 16 (61.5%) male and 17 (51.5%) females were fully immunized . 9 (34.6%) and 1(3.8%) males were partially and un immunized . Around 16 (48.5 %) female children were partially immunized . There were no girls among unimmunized category. There was no Significant statistical association in this group.

In Children of mothers who are educated till PUC and above : Out of the 5 male and 13 female children, 1 (2 0%) male and 3 (23.1%) female children were fully immunized . 4 (80%) males and 10 (76.9%) female children were partially immunized . There were no unimmunized children among both male and female children. There was no Significant statistical association in this group.

On applying chi square trend test the association between mother education with status of immunization was found to be statistically significant for males (p = 0.0007) and not significant for females (p =0.706).

SECTION IV: GENDER BIAS IN HEALTH CARE SEEKING BEHAVIOR

Out of total 1045 under five children only 424 (40.6%) of the children had suffered from illness in the past one month from the date of interview to reduce the recall bias in the study. Hence all the analysis is done for the under five children who had suffered from illness and received treatment.

Table 22: Distribution of Health status of children based on Gender

Suffered from any illness in past one month	Sex				Total
	Male	%	Female	%	
Yes	219	42	205	39.2	**424(40.6%)**
No	303	58	318	60.8	**621(59.4%)**
Total	**522**	**100**	**523**	**100**	**1045(100%)**
χ2 = 0.824 df= 1 p= 0.36					

In our study, 219 (42%) out of 522 males and 205 (39.2%) out of 523 females had suffered from any kind of illness in the past one month. Though the percentage of males who had fallen ill was more than the females the association was not statistically significant.

Graph 9 : Distribution of Health status of Children
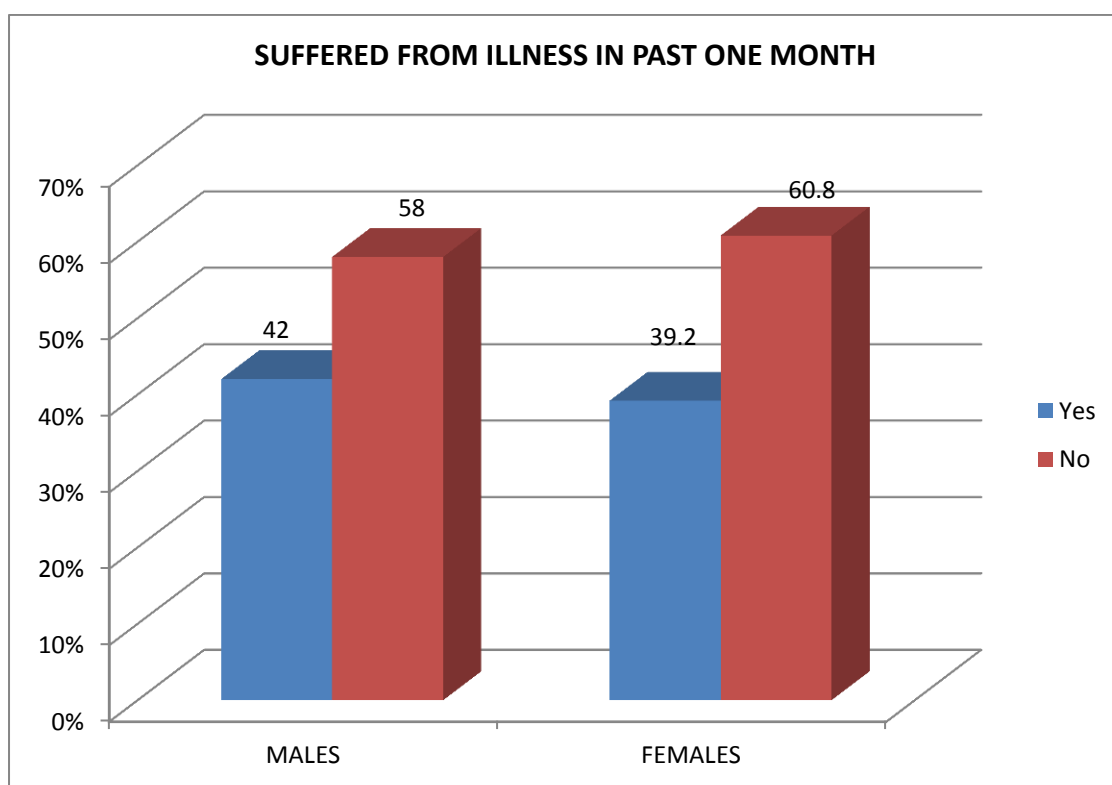
Table 23: Distribution of Children based on the Type of Illness (n= 424)

Type of illness	Gender				Total
	Male	%	Female	%	
Fever	72	32.8	57	27.8	**129(30.4%)**
Diarrhea	68	31.1	60	29.3	**128(30.2%)**
Pneumonia	61	27.9	46	22.4	**107(25.2%)**
Fever with rashes	10	4.6	12	5.9	**22(5.3%)**
Others	8	3.6	30	14.6	**38(8.9%)**
Total	**219**	**100**	**205**	**100**	**424(100%)**

Others- malaria, typhoid, accidents,

In our study among the male children fever (32.8%), diarrhea (31.1%) and pneumonia (27.9%) was most commonly seen followed by Fever with rashes (4.6%) and others (3.6%).

Among the female children diarrhea (29.3%) , fever (27.8%) and pneumonia (22.4%) was most commonly seen followed by others (14.6%) and fever with rashes (5.9%).

Table 24: Distribution of Children According to Treatment given. (n=424)

Treatment given	Gender				Total
	Male	**%**	**Female**	**%**	
Yes	212	96.8	196	95.6	**408(96.2%)**
No	7	3.2	9	4.4	**16(3.8%)**
Total	**219**	**100**	**205**	**100**	**424(100%)**
χ2 = 041df= 1 p= 0.51					

Among the children who had suffered from any kind of illness , majority of the children 96.2%   (96.8% of males and 95.6% of females) were treated . The association was found to be statistically not significant.

Table25: Distribution of Children based on Source of the Treatment (n=408) *

Type of hospital	Gender				Total
	Male	%	Female	%	
Government	182	85.8	167	85.2	**349(85.5%)**
Private	30	14.2	29	14.8	**59(14.5%)**
Total	**212**	**100**	**196**	**100**	**408(100%)**
χ2 = 0.034 df= 1 p= 0.85 * n= 408(children who received treatment)					

Majority of the children, 182 (85.8%) males and 167 (85.2%) females were treated in government hospital. 30 (14.2%) males and 29 (14.8 %) females were taken for private hospital. The association was found to be statistically not significant.

Graph 10: Distribution of Children based on Source of Treatment
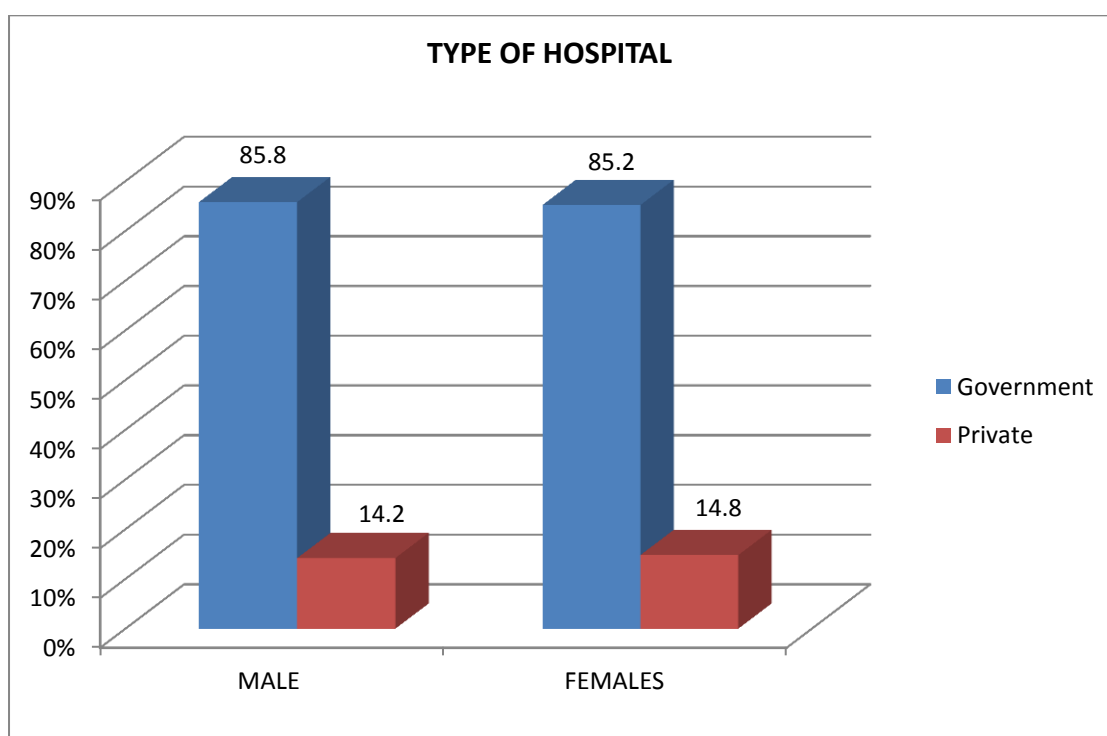
Table 26:Distribution of Children According to Treatment Seeking Behavior of Parents.

Treatment seeking behavior	Sex				Total
	Male	%	Female	%	
Within 24 hrs	69	32.6	40	40.4	**109(26.8%)**
1-2 days	123	58	109	55.6	**232(56.9%)**
3-4 days	20	9.4	47	24	**67(16.4%)**
Total	212	100	196	100	408(100%)
χ2 =18.8 df= 2 p= 000					

Above table reveals that, 123(58%) male and 109(55.6%) female were taken to hospital within one to two days from the onset of illness. The association was found to be statistically very significant.

Graph 11: Distribution of Treatment Seeking Behavior of parents for Children
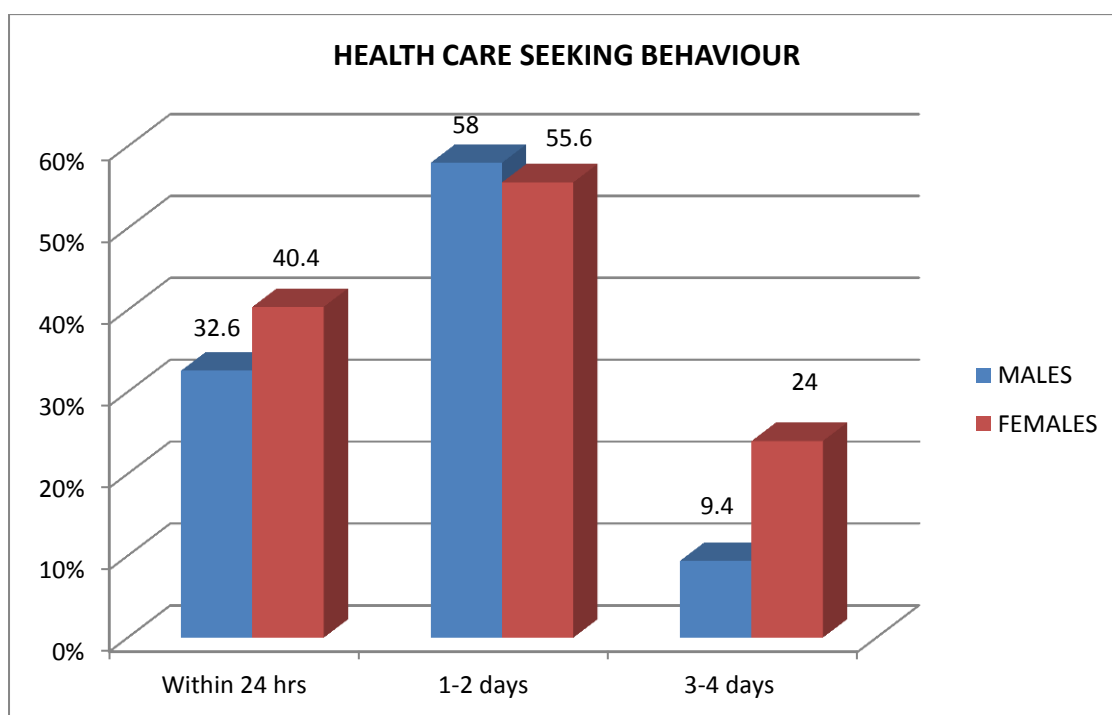
Table 27: Distribution of Children According to the System of Treatment availed for Illness.

System of medicine	Sex				Total
	Male	%	Female	%	
Allopathy	191	90.1	170	86.7	**361(88.5%)**
Ayurveda	21	9.9	26	13.3	**47(11.5%)**
Total	**212**	**100**	**196**	**100**	**408(100%)**
χ2 = 1.12 df= 1 p= 0.28					

Majority of the respondents in our study , 191 (90.1%) males and 170 (86.7%) females were taken to allopathy system of medicine to avail treatment for the illness . There was no significant statistically association.

Table 28: Distribution of Children According to Seeking Treatment from Traditional Healers.

Seeking treatment	Sex				Total
	Male	%	Female	%	
Yes	51	24.1	66	33.7	**117(28.7%)**
No	161	75.9	130	66.3	**291(71.3%)**
Total	**212**	**100**	**196**	**100**	**408(100%)**
Pooled χ2 = 4.61 df= 1 p= 0.03					

In our study, 51 (24.1%) males and 66 (33.7%) females were taken to traditional healers. The association between male and females was found to be statistically significant

Table 29:Distribution of children According to Distance Travelled to Seek Treatment.

Distance travelled	Sex				Total
	Male	%	Female	%	
< 1 Kms	66	31.1	47	24	**113(27.7%)**
1-3 Kms	99	46.7	96	49	**195(47.8%)**
3-5 Kms	29	13.7	29	14.8	**58(14.2%)**
>5 Kms	18	8.5	24	12.2	**42(10.3%)**
Total	212	100	196	100	408 (100%)
Pooled χ2 = 3.47 df= 3 p= 0.32					

In our study majority of the parents, for 99(46.7%) male and 96(49%) female children had travelled a distance of 1-3 Kms followed by 66(31.1%) male and 47(24%) female children to a distance within 1 Kms from their residence. The association was found to be statistically not significant.

Graph 12: Distribution of Distance Travelled by Parents to Avail Treatment for Children
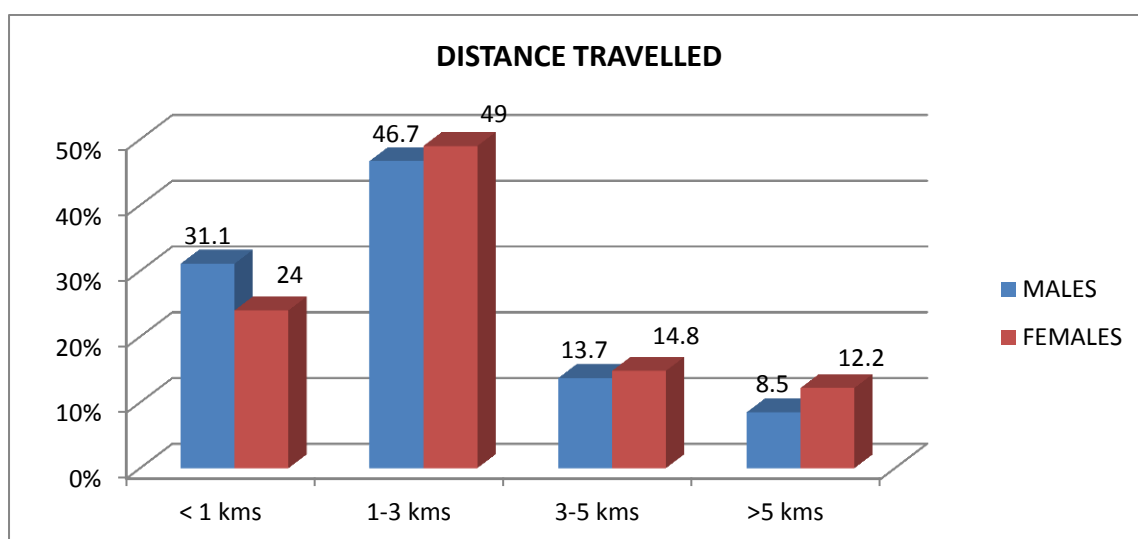
Table 30: Distribution of Children According to Amount Spent for Treatment of Illness.

Amount spent	Sex				Total
	Male	%	Female	%	
Nil	5	2.4	9	4.6	**14(3.4%)**
₹1-100	68	32.1	84	42.9	**152(37.3%)**
₹101-250	109	51.4	74	37.8	**183(44.9%)**
₹>251	30	14.2	29	14.8	**59(14.5%)**
Total	**212**	**100**	**196**	**100**	**408(100%)**
χ2 = 8.92 df= 3 p= 0.03					

In our study, for 139(65.6%) male and 103 (52.6%) female children parents spent amount greater than 100 rupees for the purpose of the treatment. The association was found to be statistically significant.

Graph 13 : Distribution of Amount Spent for Treatment of Illness by Parents.
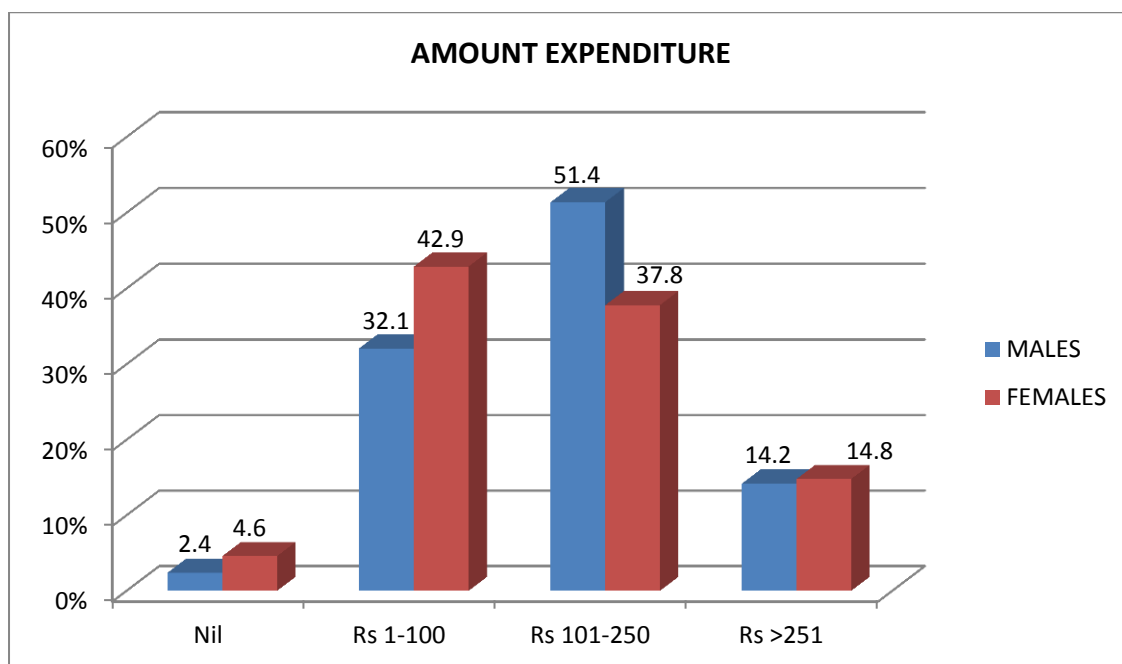
Table 31 : Distribution of Children According to Provision of Extra Food During Illness.

Extra food given during illness	Gender				Total
	Male	%	Female	%	
Yes	128	58.5	110	53.6	**238 (56.1%)**
No	91	41.5	95	46.4	**186 (43.9%)**
Total	**290**	**100**	**205**	**100**	**424 (100%)**
$\chi2 = 1.01$ df= 1 p= 0.31					

In our study, around 128 (58.5%) males and 110 (53.6%) females were given extra food in the form of milk, fruits, bread, egg and juices to the children. The association was also found to be statistically not significant

SECTION V : GENDER BIAS IN NUTRITIONAL STATUS OF CHILDREN

In our study WHO (2006) growth charts was used to classify the children as normal (+ 2 SD to – 2 SD) , mild to moderate (-2 SD to -3 SD) and severe (less than - 3 SD) malnourished .. Underweight (weight for age) , Stunting (height for age) , Wasting (weight for height) was measured. Weight for height was calculated for the814 children who were above the age of 2 years or height greater than 65 cms as per WHO Growth Chart. (Appendix III)

Table 32 : Distribution of Children According to Weight for Age

Weight for Age		Gender				Total
		Male	%	Female	%	
Normal (+ 2 SD to – 2 SD)		262	50.2	331	63.3	**593(56.7%)**
Underweight	Mild to moderate (-2 SD to -3 SD)	207	39.6	128	24.5	**335(32.1%)**
	Severe (less than - 3 SD)	53	10.2	64	12.2	**117(11.2%)**
	Total	**522**	**100**	**523**	**100**	**1045(100%)**
χ2 = 27.69 df= 2 p= 0.000						

In our study 593(56.7%) children were normal and 452 (43.3%) children were underweight.

Out of the 522 males 262(50.2%), 207(39.6%), 53(10.2%) were normal, mild to moderately and severely underweight respectively. Out of 523 females, 331(63.3%), 128 (24.5%) and 64(12.2%) were normal, mild to moderately and severely underweight respectively. There was significant statistical association.

Graph 14 :Gender Wise Distribution of Children Based on Weight for Age.
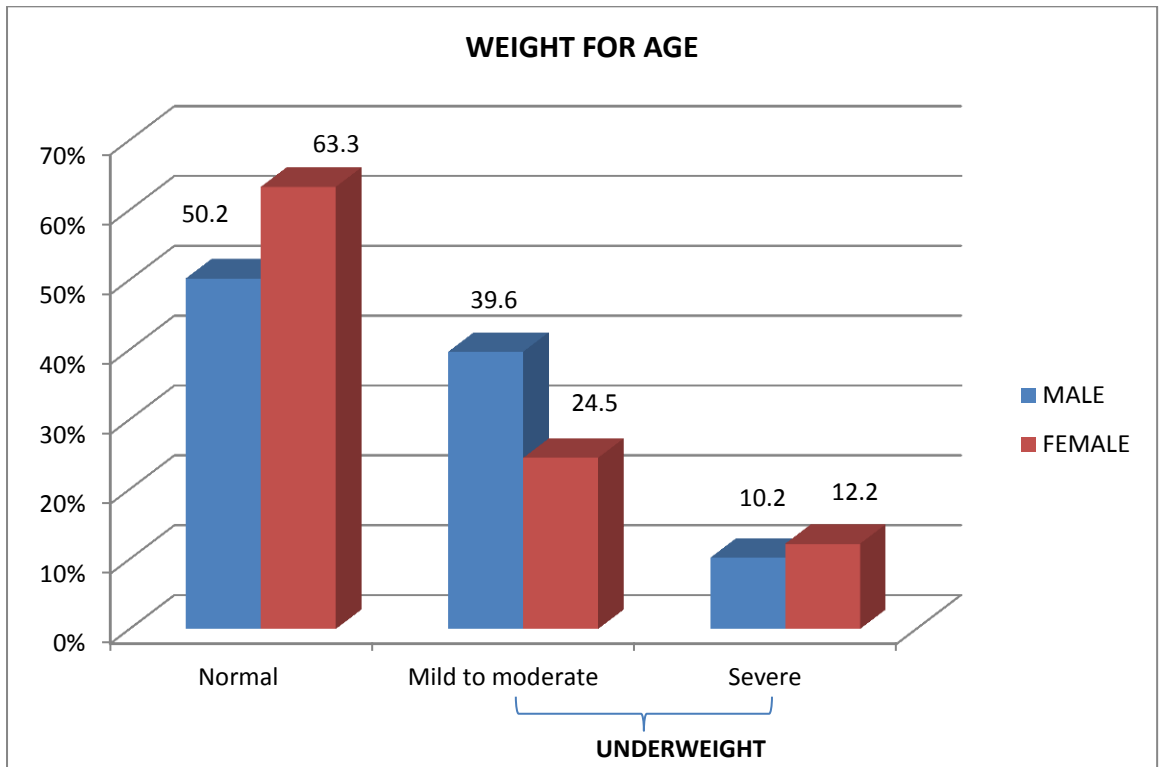
Graph 15: Distribution of Children based on Underweight.
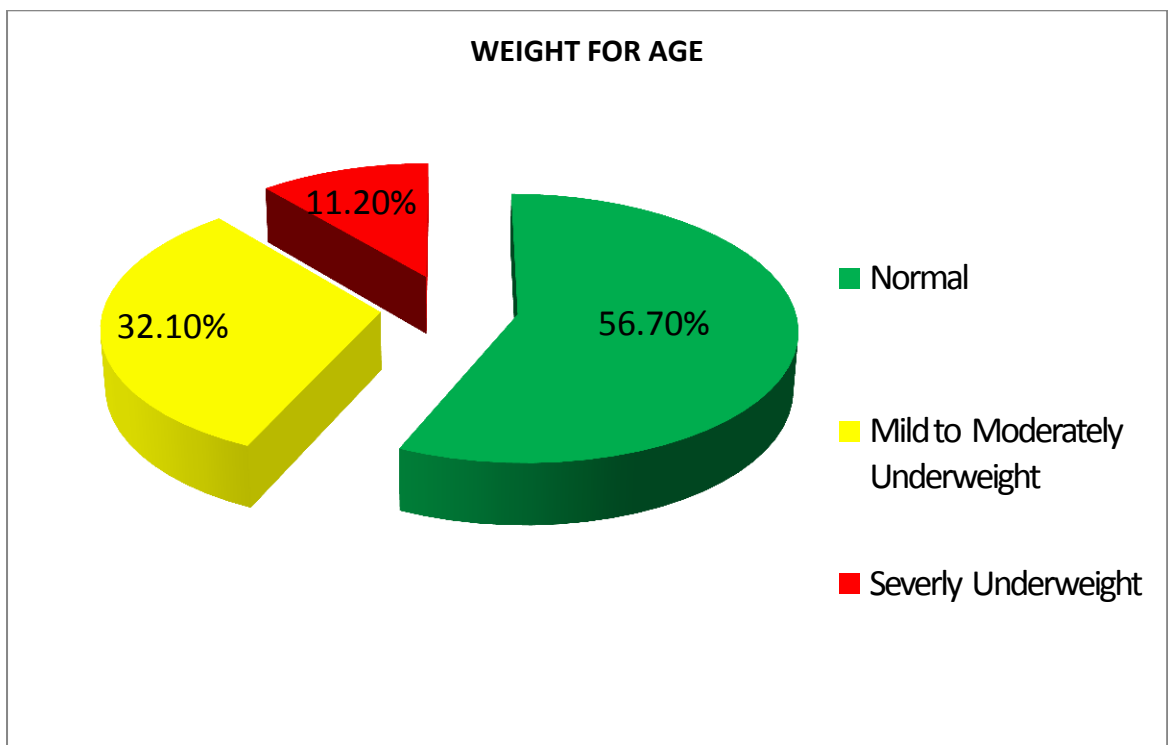
Table 33 : Distribution of Children According to Height/Length for Age

Height / Length for Age		Gender				Total
		Male	%	Female	%	
Normal (+ 2 SD to – 2 SD)		313	59.9	335	64.1	**648(62%)**
Stunting	Mild to moderate (-2 SD to -3 SD)	132	25.3	136	26.0	**268(25.6%)**
	Severe (less than - 3 SD)	77	14.8	52	9.9	**129(12.4%)**
	Total	**522**	**100**	**523**	**100**	**1045(100%)**
	χ2 = 5.65 df= 2 p= 0.059					

In our study 648 (62%) of the children were normal and 397 (38%) children were stunted.

Out of the 522 males , 313 (59.9%) ,132 (25.3%) and 77(14.8%) were normal, mild to moderately and severely stunted. Among 523 female children 335 (64.1%), 136(26%) and 52 (9.9%) were classified as normal , mild to moderately and severely stunted. The association was found to be statistically significant.

Graph 16: Gender Wise Distribution of Children based Height/Length for Age
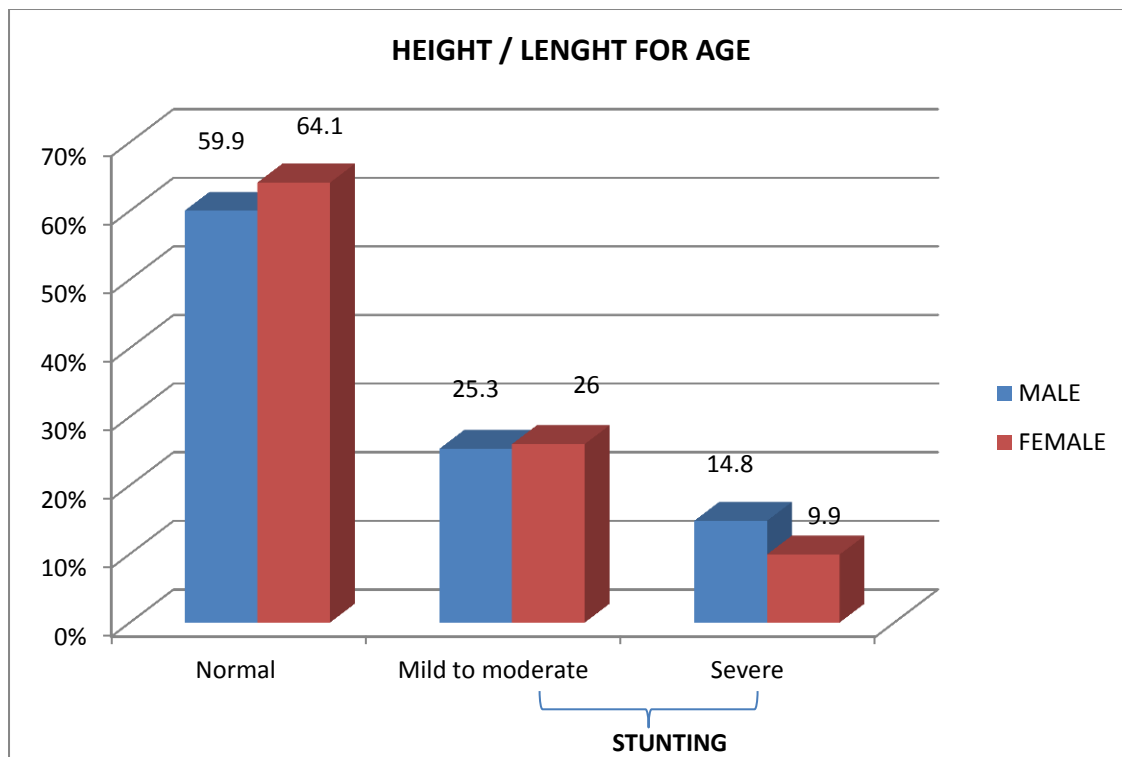
Graph 17: Distribution of Children based on Stunting.
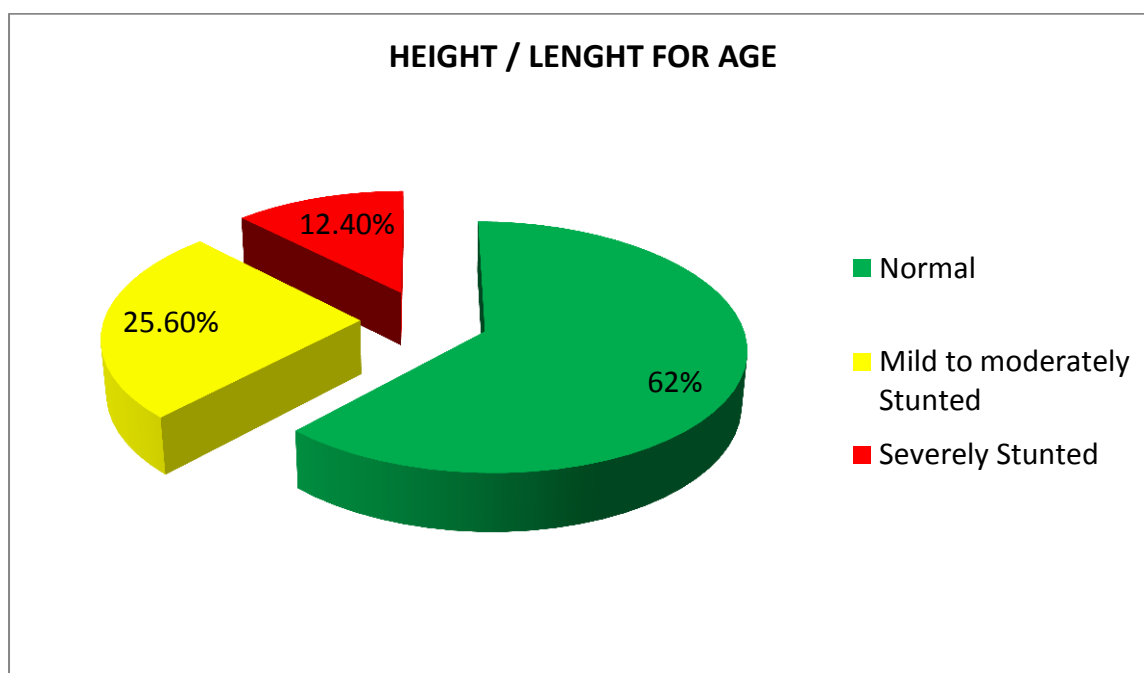
Table34 : Distribution of Children According to Weight for Height *

Weight for Height		Gender				Total
		Male	%	Female	%	
Normal (+ 2 SD to – 2 SD)		256	63.5	324	78.8	**580(71.3%)**
Wasting	Mild to moderate (-2 SD to -3 SD)	116	28.8	73	17.8	**189(23.2%)**
	Severe (less than - 3 SD)	31	7.7	14	3.4	**45(5.5%)**
	Total	**403**	**100**	**411**	**100**	**814(100%)**
*n= 814	$\chi 2$ = 24.1 df= 2 p= 0.000					

In our study wasting (weight for Height) was found to be more common among male children than female children. 580(71.3%) of the children were normal and 234 (28.7%) were wasted.

Out of 403 males and 411 female children , 256 (63.5%) male children and 324 (78.8%) female children were classified as normal. 116 (28.8%) , 31 (7.7 %) of male children and 73 (17.8%), 14 (3.4%) of female children were mild to moderately and severely wasted respectively.

Graph 18: Gender Wise Distribution of Children based Weight for Height
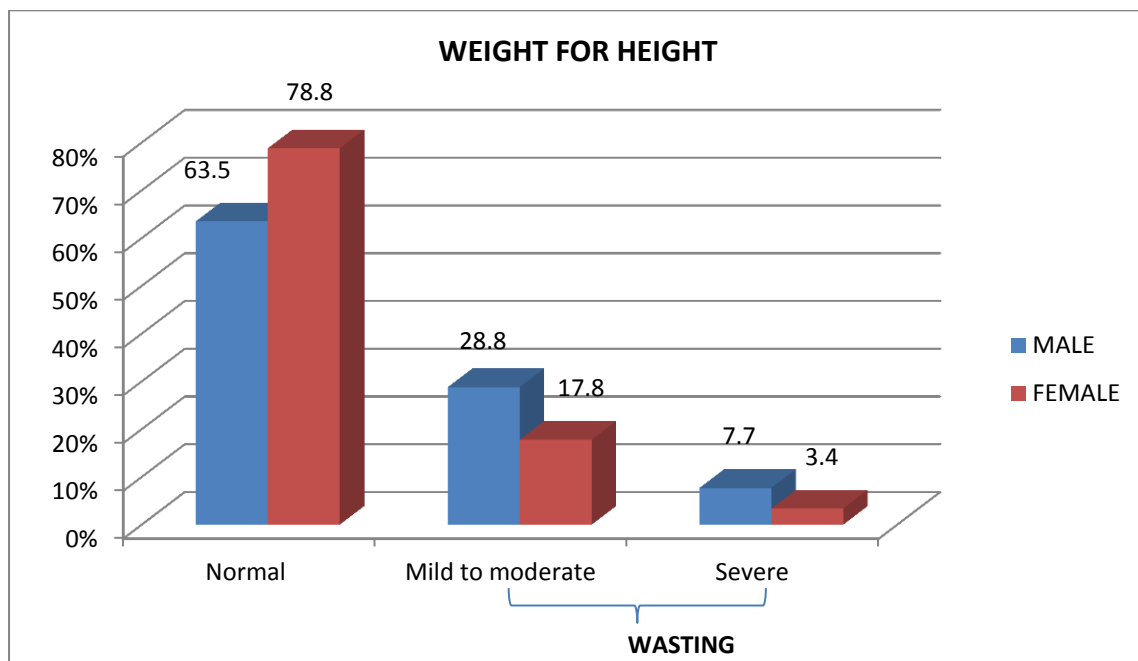
WEIGHT FOR HEIGHT

Graph 19: Distribution of Children based on Wasting.
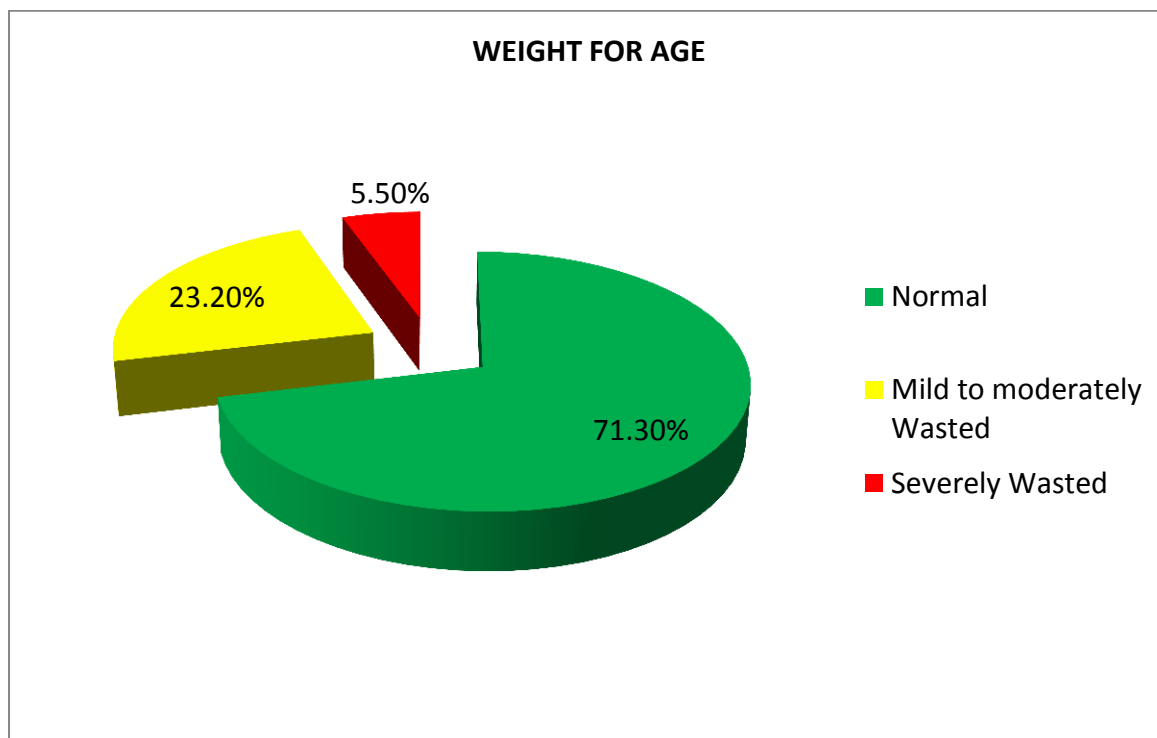
WEIGHT FOR AGE

Table 35: Analysis of Distribution of Children based on Mother's Age and Weight for Age .

Weight For Age		< 25 years		25-29 years		30-34 years		> 35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		96 (53.9%)	86 (72.3%)	110 (49.1%)	158 (60.1%)	46 (47.9%)	81 (63.3%)	10 (41.7%)	6 (46.1%)	593 (56.7%)
Under weight	Mild to moderate	66 (37.1%)	21 (17.6%)	93 (41.5%)	67 (25.5%)	36 (37.5%)	37 (28.9%)	12 (50%)	3 (23.1%)	335 (32.1%)
	Severe	16 (9%)	12 (10.1%)	21 (9.4%)	38 (14.4%)	14 (14.6%)	10 (7.8%)	2 (8.3%)	4 (30.8%)	117 (11.2%)
Total		178 (100%)	119 (100%)	224 (100%)	263 (100%)	96 (100%)	128 (100%)	24 (100%)	13 (100%)	1045 (100%)
		$\chi2 = 13.19$ df= 2 p= 0.001		$\chi2 = 14.69$ df= 2 p= 0.001		$\chi2 = 5.87$ df= 2 p= 0.053		Pooled $\chi2 = 0.069$ df= 2 p= 0.791		

In Children of mothers aged < 25 years : Among 178 males, 96 (53.9%) were normal, 66 (37.1 %) were moderately and 16 (9%) were severely underweight . Among 119 females, 86 (72.3%) were normal , 21 (17.6%) were moderately and 12 (10.1%) were severely wasting respectively . There was statistically significant association .

In Children of mothers aged between 25- 29 years : Among 224 males, 110 (49.1 %) were normal ,93 (41.5 %) were moderately and 21 (9.4%) were severely underweight. Among 263 females, 158 (60.1%) were normal, 67 (25.5%) were moderately and 38 (14.4 %) were severely wasting. There was statistically significant association.

In Children of mothers aged between 30- 34 years : Among 96 males, 46 (47.9%) were normal, 36(37.5 %) were   moderately and 14 (14.6 %) were severely underweight. Among 128 females, 81 (93.3%) were normal, 37 (28.9 %) were moderately and 10 (7. 8 %) were severely wasting. There was statistically significant association.

In Children of mothers aged > 35 years : Among 24 males, 10   (41.7%)   were normal, 12   (50 %) were moderately   and 2 (8.3%) were severely underweight. Among females, 6 (46.1 %) were normal 3 (23.1%) were moderately and 4 (30.8%) were severely wasting respectively. There association was not statistically significant.

On applying chi square trend test the association of mother age with underweight was found to be statistically not significant for both males (p = 0.07) and females (p =0.88).

Table 36: Analysis of Distribution of Children based on Mother's Age and Height/Length for Age .

Height For Age		< 25 years		25-29 years		30-34 years		> 35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		116 (65.2%)	86 (72.3%)	135 (60.2%)	169 (64.3%)	51 (53.2%)	79 (61.8)	11 (45.8%)	1 (7.7%)	648 (62%)
Stunting	Mild to moderate	44 (24.7%)	22 (18.5%)	47 (21%)	65 (24.7%)	32 (33.3%)	40 (31.2%)	9 (37.5%)	9 (69.2%)	268 (24.6%)
	Severe	18 (10.1%)	11 (9.2%)	42 (18.8%)	29 (11%)	13 (13.5%)	9 (7%)	4 (16.7%)	3 (23.1%)	129 (12.4%)
Total		178 (100%)	119 (100%)	224 (100%)	263 (100%)	96 (100%)	128 (100%)	24 (100%)	13 (100%)	1045 (100%)
		$\chi 2 = 1.83$ df= 2 p= 0.40		$\chi 2 = 5.99$ df= 2 p= 0.05		$\chi 2 = 3.14$ df= 2 p= 0.208		Pooled $\chi 2 = 5.60$ df= 1 p= 0.018		

In Children of mothers aged < 25 year : Among 178 males, 116 (65.2%) were normal, 44 (24.7 %) were moderately and 18(10.1 %) were severely stunted. Among 119 females, 86 (72.3%) were normal 22 (18.5%) were moderately and 11 (9.2%) were severely stunted. There was no significant statistical association.

In Children of mothers aged between 25- 29 years : Among 224 males, 135 (60.2 %) were normal , 47 (21 %) were moderately and 42 (18.8%) were severely stunted . Among 263 females, 169 (64.3%) were normal, 65 (24.7%) were moderately and 29 (11 %) were severely stunted. There was significant statistical association.

In Children of mothers aged between 30- 34 years: Among 96 males, 51 (53.2%) were normal, 32 (33.3 %) were moderately and 13 (13.5 %) were severely stunted. Among 128 females, 79 (61.7%) were normal, 40 (31.2 %) were moderately and 9 (7%) were severely stunted. There was no significant statistical association.

In Children of mothers aged > 35 years : Among 24 males, 11 (45.8%) were normal, 9 (37.5 %) were moderately and 4 (16.7%) were severely stunted . Among 13 females, 1 (7.7 %) was normal, 9 (69.2%) were moderately and 3 (23.1%) were severely stunted. The Association observed was statistically significant in this group.

On applying chi square trend test the association of mothers age with stunting was found to be statistically not significant for both males (p = 019) and females (p =0.22).

Table37:Analysis of Distribution of Children based on Mother's Age and Weight for Height. (n=814)

Weight For Height		< 25 years		25-29 years		30-34 years		> 35 years		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		69 (61.1%)	63 (73.2%)	116 (63.4%)	159 (77.6%)	61 (70.1%)	91 (85.1%)	10 (50%)	11 (84.6%)	580 (71.3%)
Wasting	Mild to moderate	41 (36.2%)	20 (23.3%)	52 (28.4%)	36 (17.5%)	18 (20.7%)	16 (14.9%)	5 (25%)	1 (7.7%)	189 (23.2%)
	Severe	3 (2.7%)	3 (3.5%)	15 (8.2%)	10 (4.9%)	8 (9.2%)	0 (0)	5 (25%)	1 (7.7%)	45 (5.5%)
Total		113 (100%)	86 (100%)	183 (100%)	205 (100%)	87 (100%)	107 (100%)	20 (100%)	13 (100%)	814 (100%)
		$\chi2 = 3.91$ df= 2 p= 0.14		$\chi2 = 9.42$ df= 2 p= 0.009		Pooled $\chi2 = 6.31$ df= 1 p= 0.012		Pooled $\chi2 = 4.08$ df= 1 p= 0.043		

In Children of mothers aged < 25 years : Among 113 males, 69 (61.1%) were normal , 41 (36.2 %) were moderately and 3 (2.7 %) were severely wasted . Among 86 females, 63 (73.2%) were normal, 20 (23.3%) were moderately and 3 (3.5%) were severely wasted . The association was not statistically significant in this group.

In Children of mothers aged between 25- 29 years : Among 183 males, 116 (63.2 %) were normal , 52 (28.4 %) were moderately and 15 (8.2 %) were severely wasted . Among 205 females, 159 (77.6%) were normal,36 (17.5%) were moderately and 10 (4.9 %) were severely wasted. The association observed was statistically significant in this group.

In Children of mothers aged between 30- 34 years: Among 87 males, 61 (70.1%) were normal ,18 (20.7 %) were moderately and 8 (9.2 %) were severely wasted . Among 107 females, 91 (85.1%) were normal, 16 (14.9 %) were moderately wasted. There were no severely wasted girl. The association observed was statistically significant in this group.

In Children of mothers aged > 35 years : Among 20 males, 10 (50 %) were normal, 5 (25 %) were moderately and 5 (25%) were severely wasted . Among 13 females, 11 (84.6 %) were normal, 1 (7.7%) was moderately and 1 (7.7%) was severely wasted. The association observed was statistically significant in this group.

On applying chi square trend test, the association of mother age with wasted was found to be statistically not significant for males (p = 0.75) and significant for females (p =0.02).

Table 38: Analysis of Distribution of Children based on Mother's Education and Weight for Age.

Weight For Age		Illiterate		Till 7thStd		7- 10thStd		PUC and above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		73 (51.8%)	108 (60.7%)	114 (53.8%)	90 (58.5%)	57 (44.9%)	79 (64.8%)	18 (42.9%)	54 (78.3%)	593 (56.7%)
Underweight	Mild to moderate	56 (39.7%)	54 (30.3%)	76 (35.8%)	39 (25.3%)	51 (40.1%)	26 (21.3%)	24 (57.1%)	9 (13.1%)	335 (32.1%)
	Severe	12 (8.5%)	16 (9%)	22 (10.4%)	25 (16.2%)	19 (15%)	17 (13.9%)	0 (0%)	6 (8.6%)	117 (11.2%)
Total		141 (100%)	178 (100%)	212 (100%)	154 (100%)	127 (100%)	122 (100%)	42 (100%)	69 (100%)	1045 (100%)
		$\chi2 =3.12$ df= 2 p= 0.209		$\chi2 = 5.87$ df= 2 p= 0.05		$\chi2 =11.69$ df= 2 p= 0.003		Pooled $\chi2 =14.4$ df= 1 p= 0.000		

In Children of mothers who are illiterate : Among 141 males, 73 (51.8%) were normal, 56 (39.7 %) were moderately and 12 (8.5 %) were severely underweight . Among 178 females, 108 (60.7%) were normal, 54 (30.3%) were moderately and 16 (9%) were severely underweight. The Association observed was not statistically significant in this group.

In Children of mothers who are educated till 7th Std : Among 212 males, 114 (53.8 %) were normal , 76 (35.8 %) were moderately and 22 (10.4%) were severely underweight . Among 154 females, 90 (58.5 %) were normal , 39 (25.3%) were moderately and 25 (16.2 %) were severely underweight. The Association observed was statistically significant in this group.

In Children of mothers who are educated between 7th Std to 10th Std : Among 127 males, 54 (44.9 %) were normal , 51 (40.1 %) were moderately and 19 (15 %) were severely underweight . Among 122 females, 79 (64.8%) were normal, 26 (21.3 %) were moderately and 17 (13.9 %) were severely underweight. The Association observed was   statistically significant in this group.

In Children of mothers who are educated PUC and above : Among 42 males, 18 (42.9%) were normal, 24 (57.1 %) were moderately underweight. There was no children in severely underweight category. Among 69 females, 54 (78.3 %) were normal, 9 (13.1%) were moderately and 6 (8.6 %) were severely underweight . The Association observed was statistically significant in this group.

On applying chi square trend test the association of mother education with underweight was found to be statistically not significant for both males (p = 0.50) and females (p =0.88).

Table 39 : Analysis of Distribution of Children based on Mother's Education and Height/Length for Age .

Height For Age		Illiterate		Till 7thStd		7- 10thStd		PUC and above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		91 (64.5%)	104 (58.4%)	122 (57.5%)	94 (61.1%)	74 (58.3%)	79 (64.8%)	26 (61.9%)	58 (84.1%)	**648 (62%)**
Stunting	Mild to moderate	26 (18.4%)	54 (30.4%)	60 (28.3%)	39 (25.3%)	33 (26%)	32 (26.2%)	13 (30.9%)	11 (15.9%)	**268 (24.6%)**
	Severe	24 (17.1%)	20 (11.2%)	30 (14.2%)	21 (13.6%)	20 (15.7%)	11 (9%)	3 (7.2%)	0 (0%)	**129 (12.4%)**
Total		**141 (100%)**	**178 (100%)**	**212 (100%)**	**154 (100%)**	**127 (100%)**	**122 (100%)**	**42 (100%)**	**69 (100%)**	**1045 (100%)**
		$\chi2 =6.83$ df= 2 p= 0.03		$\chi2 = 4.94$ df= 2 p= 0.78		$\chi2 = 2.69$ df= 2 p= 0.26		Pooled $\chi2 =6.96$ df= 1 p= 0.008		

In Children of mothers who are illiterate : Among males, 91 (64.5%) were normal, 26 (18.4 %) were moderately and 24 (17.1 %) were severely stunted. Among females, 104 (58.4%) were normal, 54 (30.4%) were moderately and 20 (11.2%) were severely stunted. There was statistically significant Association in this group.

In Children of mothers who are educated till 7thStd : Among males, 122 (57.5 %) were normal , 60 (28.3 %) were moderately stunted and 30 (14.2%) were severely stunted . Among females, 94 (61.1 %) were normal, 39 (25.3%) were moderately and 21 (13.6 %) were severely stunted. There was no statistically significant Association in this group.

In Children of mothers who are educated between 7thStd to 10th Std : Among 127 males, 74 (58.3 %) were normal , 33 (26 %) were moderately and 20 (15.7 %) were severely stunted. Among 122 females, 79 (64.8%) were normal, 32 (26.2 %) were moderately and 11 (9 %) were severely stunted . The Association observed was statistically not significant in this group.

In Children of mothers who are educated PUC and above : Among 42 males, 26 (61.9%) were normal , 13 (30.9 %) were moderately and 3 (7.2%) were severely stunted. Among 69 females, 58 (84.1 %) were normal and 11 (15.9%) were moderately stunted. The Association observed was statistically significant in this group.

On applying chi square trend test association of mother education with stunting was found to be statistically not significant for both males (p = 0.66) and females (p =0.08).

Table 40 : Analysis of Distribution of Children based on Mother's Education and Weight for Height .

Weight For Height		Illiterate		Till 7thStd		7- 10thStd		PUC and above		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		66 (60%)	118 (81.4%)	106 (68.4%)	94 (75.8%)	54 (53.5%)	69 (77.5%)	30 (81.1%)	43 (81.2%)	580 (71.3%)
Wasting	Mild to moderate	35 (31.8%)	26 (17.9%)	34 (21.9%)	24 (19.4%)	42 (41.6%)	14 (15.8%)	5 (13.5%)	9 (16.9%)	189 (23.2%)
	Severe	9 (8.2%)	1 (0.7%)	15 (9.7%)	6 (4.8%)	5 (4.9%)	6 (6.7%)	2 (5.4%)	1 (1.9%)	45 (5.5%)
Total		110 (100%)	145 (100%)	155 (100%)	124 (100%)	101 (100%)	89 (100%)	37 (100%)	53 (100%)	814 (100%)
		Pooled χ2 =14.2 df= 1 p= 0.000		χ2 =2.89 df= 2 p= 0.23		χ2 =15.2 df= 2 p= 0.000		Pooled χ2 =0.037 df= 1 p= 0.99		

In Children of mothers who are illiterate : Among 110 males, 66 (60%) were normal , 35 (31.8 %) were moderately and 9 (8.2 %) were severely wasted . Among 145 females, 118 (81.4%) was normal, 26 (17.9 %) were moderately and 1 (0.7 %) were severely wasted respectively . The Association observed was statistically significant.

In Children of mothers who are educated till 7th Std : Among 155 males , 106 (68.4 %) were normal , 34 (21.9 %) were moderately and 15 (9.7 %) were severely wasted . Among 124 females, 94 (75.8 %) were normal, 24 (19.4%) were moderately and 6 (4.8 %) were severely wasted. The Association observed was statistically not significant in this group.

In Children of mothers who are educated between 7th Std to 10th Std : Among males, 54 (53.5 %) were normal, 42 (41.6 %) were moderately and 5 (4.9 %) were severely wasted. Among 89 females, 69 (77.5%) were normal, 14 (15.8 %) were moderately and 6 (6.7 %) were severely wasted. The Association observed was statistically significant in this group.

In Children of mothers who are educated PUC and above : Among 37 males, 30 (81.1%) were normal, 5 (13.5%) were moderately and 2 (5.4%) were severely wasted. Among 53 females, 43 (81.2 %) were normal, 9 (16.9%) were moderately and 1 (1.9%) were severely wasted. The Association observed was statistically not significant in this group.

On applying chi square trend test the association of mother education with wasted was found to be statistically not significant for both males (p = 0.43) and females (p =0.11).

Table 41 : Analysis of Distribution of Children based on Socioeconomic Class and Weight for Age .

Weight For Age		Upper		Middle		Lower		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		6 (24%)	60 (93.7%)	128 (50.2%)	125 (61.6%)	128 (52.9%)	146 (57%)	593 (56.7%)
Under Weight	Mild to moderate	16 (64%)	3 (4.7%)	102 (40%)	53 (26.1%)	89 (36.8%)	72 (28.1%)	335 (32.1%)
	Severe	3 (12%)	1 (1.6%)	25 (9.8%)	25 (12.3%)	25 (10.3%)	38 (14.9)	117 (11.2%)
Total		25 (100%)	64 (100%)	255 (100%)	203 (100%)	242 (100%)	256 (100%)	1045 (100%)
		Pooled $\chi 2$ =45.6 df= 1 p= 0.000		$\chi 2$ =9.75 df= 2 p= 0.008		$\chi 2$ =5.27 df= 2 p= 0.07		

Among the children who belong to Upper Socioeconomic Class : Out of the 25 male and 64 female children, 6 (24%) males and 60 (93.7%) females were normal . Around 16 (64%) males and 3 (4.7%) females were mild to moderately underweight . 3(12%) males and 1(1.6%) females were severely underweight. There was significant statistical association in this group.

Among the children who belong to Middle Socioeconomic Class: Out of the total 255 male and 203 female children in this group , 128 (50.2%) males and 125 (61.6%) females were normal . Around 102 (40%) males and 53 (26.1%) females were mild to moderate underweight. In severe underweight, 25(9.8%) males and 25(12.3%) females were present. The association was found to be statistically significant.

Among the children who belong to Lower Socioeconomic Class: Out of the total 242 males and 256 females, 128 (52.9%) males and 146(57%) of females were normal. 89 (36.8%) males and 72 (28.1%) females were mild to moderately underweight. 25 (10.3%) males and 38 (14.9%) females were severely underweight. The association in this group was found to be statistically not significant.

Table 42: Analysis of Distribution of Children based on Socioeconomic Class and Height/Length for Age.

Height For Age		Upper		Middle		Lower		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		12 (48%)	61 (95.3%)	152 (59.6%)	126 (62.1%)	149 (61.6%)	148 (57.8%)	648 (62%)
Stunting	Mild to moderate	11 (44%)	2 (3.1%)	65 (25.5%)	56 (27.6%)	56 (23.1%)	78 (30.5%)	268 (25.6%)
	Severe	2 (8%)	1 (1.6%)	38 (14.9%)	21 (10.3%)	37 (15.3%)	30 (11.7%)	129 (12.4%)
Total		25 (100%)	64 (100%)	255 (100%)	203 (100%)	242 (100%)	256 (100%)	1045 (100%)
		Pooled χ^2 =27.3 df= 1 p= 0.000		χ^2 =2.12 df=2 p= 0.346		χ^2 =3.96 df= 2 p= 0.13		

Among the children who belong to Upper Socioeconomic Class : Out of the 25 male and 64 female children , 12 (48 %) males and 61 (95.3%) females were normal . Around 11 (44%) males and 2 (3.1 %) females were mild to moderately stunted . 2 (8 %) males and 1(1.6%) females was severely stunted. The association in this group was found to be statistically significant.

Among the children who belong to Middle Socioeconomic Class: Out of the total 255 male and 203 female children in this group , 152 (59.6%) males and 126 (62.1%) females were normal . Around 65 (25.5%) males and 56 (27.6 %) females were mild to moderate stunted . In severe stunted category 38 (14.9 %) males and 21 (10.3%) females were present. The association in this group was found to be statistically not significant.

Among the children who belong to Lower Socioeconomic Class: Out of the total 242 males and 256 females in this group, 149 (61.6%) males and 148 (57.8%) females were normal. 56 (23.1%) males and 78 (30.5%) females were mild to moderately stunted . 37 (15.3%) males and 30 (11.7 %) females were severely stunted . The association in this group was found to be statistically not significant.

Table 43: Analysis of Distribution of Children based on Socioeconomic Class and Weight for Height .

Weight For Height		Upper		Middle		Lower		Total
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	
Normal		11 (44%)	47 (95.9%)	112 (58%)	118 (72.4%)	133 (71.9%)	159 (79.9%)	580 (71.3%)
Wasting	Mild to moderate	11 (44%)	0 (0%)	67 (34.7%)	40 (24.6%)	38 (20.5%)	33 (16.6%)	189 (23.2%)
	Severe	3 (12%)	2 (4.1%)	14 (7.3%)	5 (3%)	14 (7.6%)	7 (3.5%)	45 (5.5%)
Total		25 (100%)	49 (100%)	193 (100%)	163 (100%)	185 (100%)	199 (100%)	814 (100%)
		Pooled $\chi2$ =26.3 df= 1 p= 0.000		$\chi2$ = 8.77 df= 2 p= 0.012		$\chi2$ = 4.5 df= 2 p= 0.106		

Among the children who belong to Upper Socioeconomic Class : Out of the 25 male and 49 female children , 11 (44 %) males and 47 (95.9%) females were normal . Around 11 (44%) males were mild to moderately wasted . 3 (12 %) males and 2 (4.1 %) females were severely wasted . The association in this group was found to be statistically significant.

Among the children who belong to Middle Socioeconomic Class: Out of the total 193 male and 163 female children in this group , 112 (58 %) males and 118 (72.4 %) of females were normal . Around 67 (34.7%) males and 40 (24.6 %) females were mild to moderately wasted. In severely wasted category 14 (7.3 %) males and 5 (3%) females were present . The association in this group was found to be statistically significant.

Among the children who belong to Lower Socioeconomic Class: Out of the total 185 males and 199 females in this group, 133 (71.9%) males and 159 (79.9%) females were normal. 38 (20.5%) males and 33 (16.6%) females were mild to moderately wasted . 14 (7.6%) males and 7 (3.5 %) females were severely wasted. The association in this group was found to be statistically not significant.

DISCUSSION

Study was done in the rural areas of Bijapur district from January to November 2013. Interview technique was used to collect data for 1045 under five children from the mothers . Equal number of male (522) and female (523) children were included in the study. Children were almost uniformly distributed in all the age groups. Majority (76.4%) belonged to Hindu by religion. Around 69.6% of the study subjects were in the class III and IV of B G Prasad socioeconomic classification.43% of the children were of the first birth order. Nearly half of the children belonged to joint family .

Majority (46.6%) of the mother were in the age group of 25-29 years and 30.5% were literate. Around 83.3% were housewife.62.1% of the fathers were aged more than 30 years and 14.7% were illiterate .

I. Breast feeding practices:

Initiation of breastfeeding :

In our study only 45.3% males and 40.6% females breastfeeding was initiated within one hour which is almost similar to the results of the study done by DhananjayPathak[47] but high compared to the study done by Pal I and Chaudhuri R N[42]

Prelacteal feeds :

Prelacteal feeds were given to 48% (40.6% males and 55.2% females) of children in our study , which is comparable to the findings of the study done by Pal I and Chaudhuri R N [42] but high compared to studies done by DhananjayPathak[47]

Exclusive breastfeeding :

Exclusive breastfeeding up to 6 months were practiced for 34.7% (41.5% male and 27.1% females) which is higher when compared to the studies done by Ayaz Ahmed Sohag et al [95], Bhavana R [96] and Suman Chakrabarthy et al [44].

Weaning practices :

In our study the weaning was started after six months for 36.6 % males and 52.6 % females , which is low compared to the studies done by Pal I and Chaudhuri R N [42] and Dhananjay Pathak.[47]

Duration of breastfeeding :

Duration of breast feeding has a important aspect on child nutritional and health status .In our study breast feeding till 18 months was practiced by 68.9% males and 78.6% females , which is comparable to the results seen in the study done by DhananjayPathak[47].

As per NFHS 3 [13]data average duration of breastfeeding was 25.4 and 23.6 months for males and females respectively.

Almost all the children were initiated breastfeeding within 24 hrs , maximum being within 1-8 hrs. Nearly 48% of the newborn were given prelacteal feeds. Almost all the mothers informed that they want to breastfed as long as the baby wishes and breast secrets the milk.

In spite of Maximum effort to create awareness regarding Proper Breastfeeding Practices by the Field Health Workers like ASHA, Anganawadi

workers, ANM etc and also by IEC activities by the government , administration of prelacteal feeds were practiced , which may be attributed to their Cultural Practices.

II. Immunization status of the children.

A total of 207 children between the age group of 12 to 23 months was elicited for immunization status.

In our present study the fully immunized male children were 68.8% and 57.2% female children, which is similar to the study done by Smitha V [97] , Dharshan K etal [55],and Govani K J et al [59] . In the study done by Sheth Jay K et al [58] , Sutapa Mandal et al [60] and Pankaj Kumar et al [56] the results were higher but lower in the studies done by R S Gupta et al [57] and Arun P Jose [62] when compared with our findings.

The percentage of fully immunized children was higher in our study when compared to NFHS 3 data and UNICEF 2009 Survey .[13,98]

The dropout rate of vaccination from BCG to Measles was 13.2for males and 13.9 for females in our study , which is higher than the results of the other studies done by Pankaj Kumar et al [56] , Sheth Jay K et al[58] and Govani K J et al [59] but low compared to study done by Arun P Jose. [62]

The dropout of immunization from OPV1 to OPV3 in our study was 18.5 for males and 28.5 for females, which is higher than the results of the study done by Sheth Jay K etal [58],Pankaj Kumar et al [56] and Arun P Jose [62] .

The dropout rate from DPT 1 to DPT 3 in our study was 16.6 for males and 25.8 for females, which is higher when compared to results seen in the

study done by Sheth Jay K et al [58] and Pankaj Kumar et al [56] but low when compared to the study done by Govani K J et al.[59]

The dropout rate from Hep B 1 to Hep B 3 in our study was 25.7 for males and 30.8 for females.

Though the percentage of Children receiving first dose of the vaccine was high among both the gender, the follow up doses decreased more among the female children than the males. There was greater Reduction with Hep B compared to BCG,OPV and DPT , may be due to the fact that Hep B was introduced recently and there may be lack of availability of vaccines

The chances of female children getting full immunized when compared to males was less in our study which is similar to the other studies[45,61]which can be attributed to the high affinity ,care and precaution taken for the Male children than female children.

The ignorance of the parents due to lack of awareness about the benefits of Immunization among the mothers and coupled with the expectation of the health workers to visit their houses for immunization as practice under National Pulse Polio Programme and hence felt no need to go to the Immunization canter can be the reason for lesser coverage of immunization in our study.

III. HEALTH CARE SEEKING BEHAVIOR :

In our study more number of males (42%) had fallen ill in the past one month when compared to females (39.2%) , though the percentage of males

was higher it was found to be statistically not significant. Similar results were also seen in the study done by Anima Sen and Salma Seth [70]. In the studies done by Aparna Pandey et al [65] and Jeffrey R Wills et al [68] more number of females had fallen ill than male children .B Ganatra and S Hirve[66], Subhash Pokhreal et al [99] and Syed Mubashrir Ali [100] in there study also didn't find much difference between male and female getting ill.

Among the children who had fallen ill in the past one month, 96.8% males and 95.6 % female had availed treatment from the qualified medical professional in our study.. There was no significant difference for seeking treatment from qualified medical professional between male and females in our study. Similar results were also seen in the studies done by Suresh Sharma [45] and B Ganatra and S Hirve[66]. In the studies done by Aparna Panday etal [65] and Nilanjana Gosh [67].

In our study 85.8% Males and 85.2% female were taken for government hospital to avail the treatment. The findings in our study is very high when compared to the study done by .B Ganatra and S Hirve[66], Suresh Sharma [45] , Jeffrey r Wills [68] and Nilanjana Gosh [67].

Fever, Diarrhea and Pneumonia were the most common illness seen in both male and female children which is similar to the studies of Jeffrey R Wills [68] and NFHS Survey [13]may be due to the unhygienic conditions .

Nearly 77.8% male and 73 % female parents had travelled a distance up to 3 Kms to avail treatment in our study. In the study done by Aparna Pandey et al [65] average distance travelled for treatment was 3.3km for boys

and 1.6km for girls. In the Dhanjaya Phatak[47] .study also parents travelled a mean distance of 3.8 for male and 3.1 for female children treatment.

Regarding the amount spent for the treatment of the illness ,for 51.4% males parents spent around 100-250 rupees whereas for 37.8% girls same range of amount was spent . Overall amount spent for treatment on male children was more than female children. Similar observation were made in the study done by Aparna Pandey et al [65], B Ganatra and SHirve[66], Jeffrey R Wills [68] and Subhash Pokhreal[101].

Large number of parents availed government service due to fact that large number of families belonged to lower socioeconomic class. Being the fact that fathers used to leave the house for occupation very early and mothers being busy in household activities coupled with little or no education may be the reason for time lag in the initiation of treatment .

IV. NUTRITIONAL STATUS OF CHILDREN :

In our study , 49.9% male and 36.7% females were underweight ,40.1% male and 35.9% females were stunted and wasting was seen in 36.5% male and 21.2 %.

Overall the prevalence of malnutrition in any form was more seen among the male children when compared to female children. Similar kind of results was also seen in the studies done by Sandip Kumar Ray et al [74], DhananjayPhatak[47] and Suman Chakrabarty et al [79].

In the studies done by Banerjee et al [71],Harishankar et al [72] ,Balani K D et al [73], Ndiklu et al[75]and Kaneta K et al [80], the prevalence of malnutrition was more among female children when compared to male children contrasting to our study findings .

The percentage of underweight seen among male children was higher and lower among female children when compared to NFHS 3 data. The percentage of children suffering from stunted was lower and percentage of children suffering from wasting was higher among both the gender in our study when compared to NFHS 3 data.[13]

Though it is believed that male children are better and well-nourished than females , the finding in our study is contradictory which is a positive sign .

SUMMARY

This study was conducted by selecting 2 villages from each of the five taluks of Bijapur district. Thus 10 villages were selected. Study was conducted from 1st January 2013 to 31st November 2013 .Data from the mothers of the 1045 under five children was collected by interview technique, regarding socio demographic profile, Breastfeeding practices, Immunization services, Healthcare seeking behavior and nutritional status of the children. The highlights of this study were as follows

A. SOCIODEMOGRAPHIC PROFILE:

- Equal numbers of male and female children were studied.

- Majority (76%) children belonged to Hindu Religion.

- Large Number (48%) children belonged to lower socioeconomic class (class IV and V).

- Majority (51%) of them were Joint families .

- Mothers in the age group of 25-29 years constituted 47%

- Majority of the mothers were literate (70%) and housewives (83%).

B. BREASTFEEDING PRACTICES:

- Large number 48 % of children had received prelacteal feeds in the form of sugar water and honey and the association with gender was statistically significant.

- Majority of female children (55%) received prelacteal feeds

- Only 43% (45.3% Male and 40.6% Female)children had received Breastfeeding within 1 hour after delivery .

- Mother's education had significant association for initiation of breastfeeding to female children.

- Only 35 % (41.5% Male and 27.1% Female) children had received exclusive breastfeeding for a minimum of 6 months duration.

- Mothers education had significant statistical association for exclusive breastfeeding among both the gender.

- In Majority of children 59 % (45.5% male and 78.3% female) weaning was started after 6 months of age and the association was found to be statistically significant with gender.

- The prevalence of gender bias in initiation of breastfeeding within one hour of delivery was 4.7%, exclusively breastfed till 6 months was 14.4% .

- Male children were more favored by the mothers in breastfeeding practices.

C. IMMUNIZATION SERVICES:

- Overall majority 63.3% (68.8% Male and 57.2% Female) of children were fully immunized and the association between male and female was not statistically significant.

- The dropout rate for all the individual vaccines was high in the female children .

- Mothers education had significant difference for getting male children fully immunized .

- The prevalence of Gender Bias among Fully Immunized children was 11.6% favoring towards the male children.

D. HEALTH CARE SEEKING BEHAVIOR

- Large number 41% (42% Male and 39.2% Female)of children had suffered from illness in the past one month .

- Fever, Diarrhea and Pneumonia were the common illness reported among both the gender.

- The prevalence of children suffering from Fever was 30.4% (32.8% males and 27.8% females) , Diarrhea was 30.2% (31.1% for males and 29.3% females) and ARI was 25.2% (27.9% for males and 22.4% for females) .

- Majority (96%) children had availed treatment for the illness .

- Majority (86%) children were taken for the government hospital .

- Majority 57% (32.6% Male and 20.4% Female) children were taken to hospital within the span 1-2 days for treatment.

- Male children were taken at the earliest to avail treatment and the association was found to be statistically significant.

- Majority (88.5%) children availed allopathy system of medicine.

- Only 28.7% children were taken to seek treatment from untrained professional.

- Large number of girls were taken to untrained professional (traditional healers) for treatment and the association was significant .

- More amount of money for the treatment was spent on the male children and the association was statistically significant.

- Majority (56.1%) children were given extra food during illness in the form of fruits , milk irrespective of the gender

E. NUTRITIONAL STATUS OF THE CHILDREN

- The overall prevalence of underweight among under five children was 43% (49.8 % male and 36.7% female)

- The association between underweight and gender was statistically significant.

- Mother age also had significant association with underweight among both the gender.

- The overall prevalence of stunting among under five children was 38 % (40.1 % male and 35.9% female) and significantly associated with gender.

- The overall prevalence of wasting among children was 28.7 % (36.5 % male and 21.2 % female)and significantly associated with gender.

- Mother age had significant association with wasting among female children.

- The prevalence of Gender Bias among children with Underweight was 13.1%, Stunting was 4.2% and Wasting was 15.3% favoring the female children.

CONCLUSION

Large number of the mothers were aware about the importance of initiation of Breastfeeding within one hour after delivery , exclusive breastfeeding till 6 months of age and were practicing it .Male children were more favored by the mothers in breastfeeding practices.

Though the vaccination coverage of Bijapur district has improved over the years, the coverage is still lagging behind the state average as well as Universal Immunization Programme target of 85% coverage. Gender of the child is one of the factor for the overall lesser coverage of immunization as more number of males were fully immunized than female children. Other factors like ignorance regarding the advantages of vaccinations , time and place of immunization sessions and most importantly the attitude of the people that health workers will come to home for immunization as practiced under Pulse Polio Programme and hence no need to go for immunization Sessions. Though the first dose of OPV, DPT , HEP B is received by higher proportions among both the gender, the follow up doses are missed by the majority. However the dropout rate for individual vaccines was also high for female children when compared to male children. Gender bias favoring the male children was noticed among the fully immunized children.

The overall prevalence of disease was low in our study area. Majority of the children suffered from fever, diarrhea and ARI. Significant differentiation was observed between the male and female children with regards to time lag between child falling ill and initiation of treatment, amount spent for treatment. Heartening to

note that both male and female of children availed treatment from a qualified professional equally.

The median height and weight for the majority of children were within the normal range of WHO 2006 growth charts. Male children were more malnourished than Female children. This is contrary to the general belief that females are more malnourished.

RECOMMENDATION

IEC activities should be enhanced so as to change the behavior of 100% mothers for

i) Initiation of breastfeeding at the earliest, exclusive breastfeeding and weaning practices.

ii) To get the children full immunized and to achieve the UIP target ,

iii) To seek the timely reference from a qualified Doctor for the illness and proper adherence to the treatment .

iv) Prevention of malnourishment by improving the duration of breastfeeding, initiation of Weaning with protein energy rich diet at proper age and of proper hygienic practices.

v) To provide proper and adequate health care for children during illness.

Most importantly all the IEC activities should be focusing on **GENDER EQUALITY** in all aspects.

LIMITATIONS OF THE STUDY

- The possibility of the recall bias in the breastfeeding practices exists.

- Advice given by the health workers regarding breastfeeding and immunization schedule during ANC/PNC visits was not obtained.

- The study done calculates the crude immunization coverage using "card plus history", hence the possibility of recall bias reading the dose of vaccines received may be present in the children with no immunization card.

- Unfortunately we could contact very few fathers during our visit, as most of them were sole bread earning of the family and had left for the work. Hence information on knowledge attitude and practice regarding child rearing practices and care during illness has not been analyzed.

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ANNEXURE – I

PROFORMA

TITLE OF THE STUDY : "A STUDY ON GENDER BIAS AMONG UNDER FIVE CHILDREN IN RURAL AREA OF BIJAPUR DISTRICT "

1) Sl No:

2) Date:

3) Taluk:

4) Village:

5) Particulars Of Children Less Than Five Years Of Age:

    Name:

    Age: Sex: Religion:

6) Particulars of Parents

    Father Name: Mother Name:

    Age: Age:

    Education: Education:

    Occupation: Occupation:

    Income: Income:

7) Total Family Members:

    Adults – Male: Children- Male:

        Female: Female:

8) Type Of Family: Nuclear/ Joint

9) Particulars Of The Children In The Family:

Sl No	Name	Age	Sex

10) Total Annual Family Income:

11) Per Capita Income:

12) Socio Economic Status:

13) Obstretic History, Breastfeeding , Weaning And Normal Diet:

    1) Type Of Delivery: Normal/Cesarean

    2) Place Of Delivery: Home / Govt Hosp/ Private Hosp

    3) Birth Order :

14) If The Age Of Children Is Between 0-2 Years (Q. No 4 – 11)

    1) When Was Breastfeeding Initiated After Delivery : <1hr/1-8hrs/8-24hrs/>24hrs

    2) If Any Prelacteal Feeds Given: Yes / No

       If Yes, What Was Given?   Sugar Water/ Honey/ Cow's Milk/ Others

    3) Duration Of Exclusive Breastfeeding :< 6 Months / > 6 Months

4) At What Age Was Weaning Started: < 4 Months/ 4-6 Months / > 6 Months

5) Weaning Foods Given : Biscuits / Bread/ Rice Ganji / Rice/ Sweets / Any

Other

6) When Was Breastfeeding Stopped Completely:

< 6 Months/ 6-12 Months/12 -18months/>18months

7) At What Age Child Started Having Normal Food ?

< 6 Months/ 6-12 Months/12 -18months/>18months

15) Immunization: (If The Age Of Children Is Between 12- 23 months)

1) Vaccination Card : Present/Absent

2) Place Of Immunization: Government / Private

3) BCG : Scar Present/Absent

	I St Dose	II nd Dose	III rd Dose	Booster
OPV				
DPT				
Hepatitis B				
Hib Vaccine	Received / Not Received			
Measles	Received / Not Received			
J E	Received / Not Received			
Vitamin A	Received / Not Received			

4) Child Is : Fully Immunized / Partially Immunized / Unimmunized

16) Health Care Seking During Illness:

1) Has The Child Suffered From Any Kind Of Illness In Past 1 Month: Y / N

If Yes, Name of the child :   Age :   sex :

Which Disease ?And   Duration? :

2) Was The Child Given Treatment For The Illness ? Y / N

If Yes ,After How Many Days From The Onset Of Disease:

   Within 24 hrs / 1-2 days /3-4 days/when the condition worsened

3)Was The Child Taken To A Government /Private Hospital?

4) What System Of Medicine Did They Avail Service From?

   Allopathy / Ayurveda / Others.(specify)

5) Do You Seek Emulments From Traditional healers In Village ? Y / N

   If Yes, Is It For Boys/ Girls / Both / None

6) Distance Travelled By Parents For Treatment

   < 1 Kms   3-5 Kms

    1-3 Kms   > 5 Kms

7) Amount Spent For The Treatment (In Rupees) ?

   Nil   ₹ 101 To 250

   ₹1 To 100   ₹ >251

8) Any Extra Food/Care Given To Child During Illness?   Y/N

   If Yes, Details?

9) Do You Seek Immediate Medical Care For Boys/Girls/Both.?

17) Nutritional Status:

1) Weight:

2) Height:

3) Who Grading Of Malnutrition:

WFA :

HFA :   WFH :

CONSENT FORM

TITLE OF TOPIC: A STUDY ON GENDER BIAS AMONG UNDER FIVE CHILDREN IN RURAL AREAS OF BIJPAUR DISTRICT.

P.G. Student Name : **DR. SHASHANK K J.**

P.G. Guide Name : **DR. M. M. ANGADI**

All aspects of this consent form are explained to the patient in the language understood by him/her.

Purpose of study:

I have been informed that this study will help to known the presence of gender bias among under five children in rural areas of Bijapur district. The study is intended to interview the parents/guardians in the rural areas of Bijapur district.

Procedure:

I understand that this is a field based programme. In this procedure I will be asked a series of questions by the researcher regarding the topic.

Benefits:

I understand that my participation in the study as one of the study subjects will help the researcher to analyze the presence of gender bias in rural areas of Bijapur district.

Confidentiality:

Your answers are kept secret. Your name and contact information will never be identified to any one outside of the study.

Requires for more information:

I understand that I may ask more questions about the study at any time to Dr.Shashank K J at the Department of Community Medicine to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of the study, which might influence my continued participation. A copy of this consent form will be given to me to keep for careful reading.

Refusal or withdrawal of participation:

I understand that my participation is voluntary and that I may refuse to participate or may withdraw consent and discontinue participation in the study at any time without prejudice. I also understand that Dr. Shashank K J may terminate my participation in the study at any time after he has explained the reasons for doing so.

Study subject consent statement:

I confirm that Dr. Shashank K J has explained to me the purpose of research, the study procedure that I will undergo & the possible discomfort as well as benefits that I may experience in my own language. I have been explained all the above in detail in my language and understand the same.

Therefore, I agree to give consent to participate as a subject in this research project.

(Guide / Principle Investigator)   (Date)

(Investigator)   (Date)
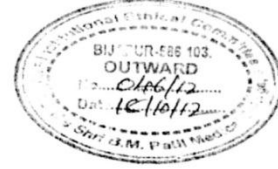
Signature of participant   Date:

Signature of witness: Date :

ANNEXURE – III

ETHICAL COMMITTEE CLEARANCE LETTER

B.L.D.E. UNIVERSITY'S
SHRI.B.M.PATIL MEDICAL COLLEGE, BIJAPUR-586 103
INSTITUTIONAL ETHICAL COMMITTEE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this college met on 18-10-2012 at 3-30pm to scrutinize the Synopsis of Postgraduate Students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected & revised version synopsis of the Thesis has been accorded Ethical Clearance.

Title "A Study on gender bias among under five children in rural areas of Bijapur District"

Name of P.G. student Dr. Shashank. K.J. Community medicine

Name of Guide/Co-investigator Dr M.M. Angadi Prof E, HOD. Community medicine

DR.TEJASWINI. VALLABHA
CHAIRMAN
INSTITUTIONAL ETHICAL COMMITTEE
BLDEU'S, SHRI.B.M.PATIL
MEDICAL COLLEGE, BIJAPUR.

Following documents were placed before E.C. for Scrutinization
1) Copy of Synopsis/Research project.
2) Copy of informed consent form
3) Any other relevant documents.

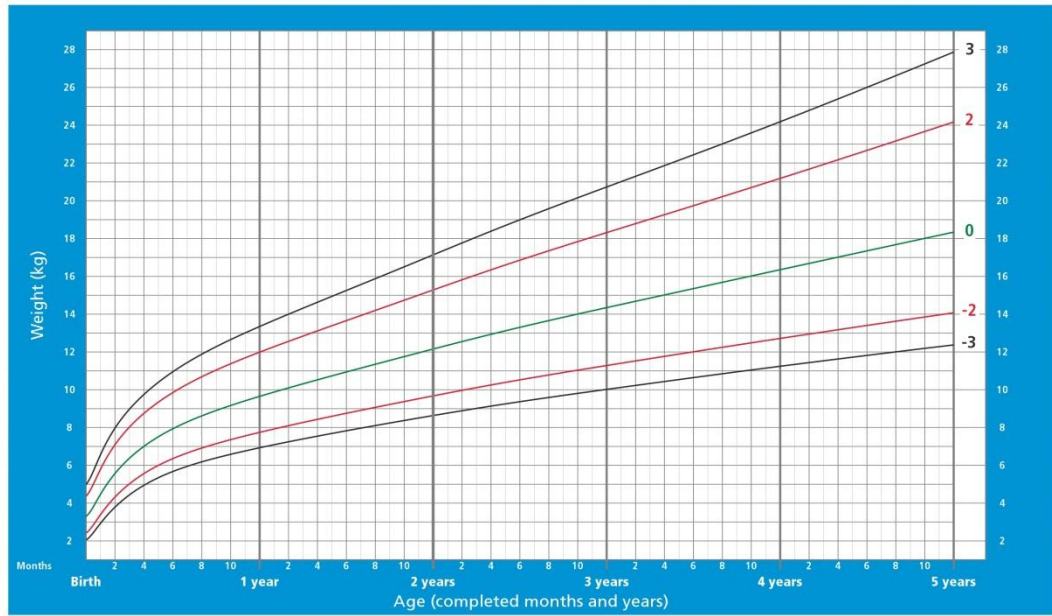# ANNEXURE – IV

GROWTH CHARTS

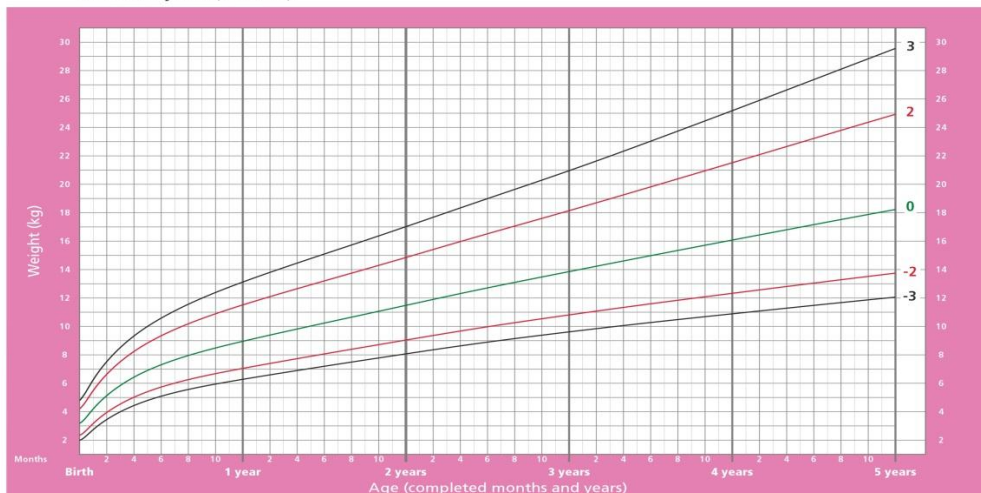## Weight-for-age BOYS
Birth to 5 years (z-scores)
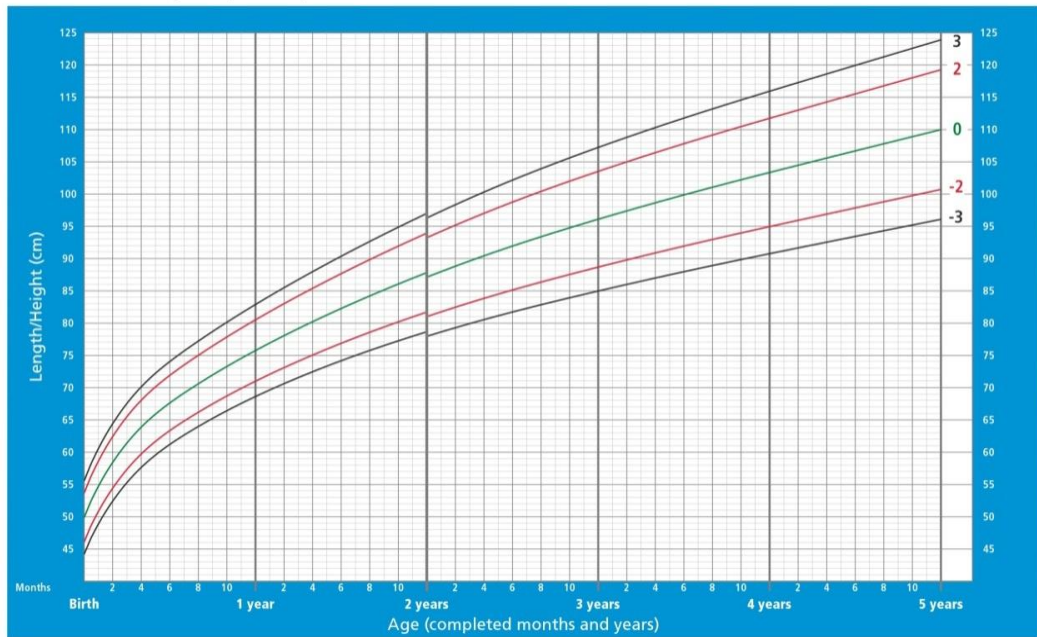

WHO Child Growth Standards

Weight-for-age GIRLS
Birth to 5 years (z-scores)

WHO Child Growth Standards
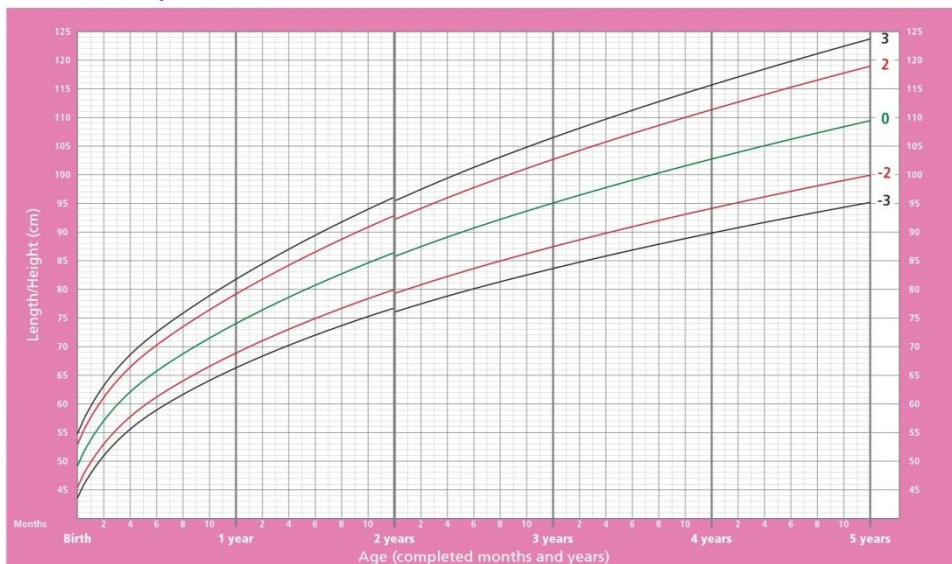
154

Length/height-for-age BOYS

Birth to 5 years (z-scores)

World Health Organization

WHO Child Growth Standards

Length/height-for-age GIRLS

Birth to 5 years (z-scores)

World Health Organization

WHO Child Growth Standards

Weight-for-height BOYS

2 to 5 years (z-scores)

World Health Organization
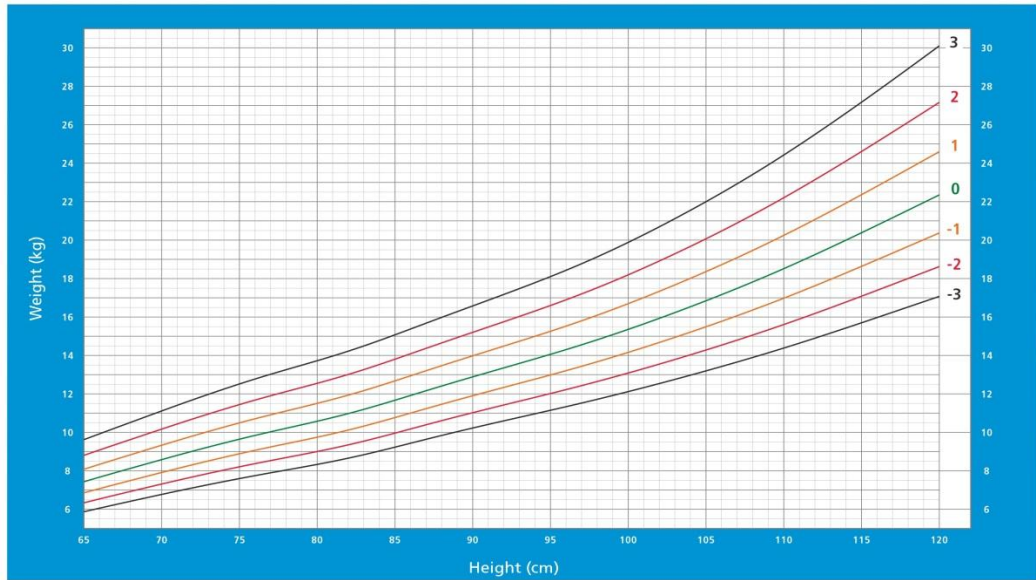
WHO Child Growth Standards

Weight-for-Height GIRLS

2 to 5 years (z-scores)

World Health Organization
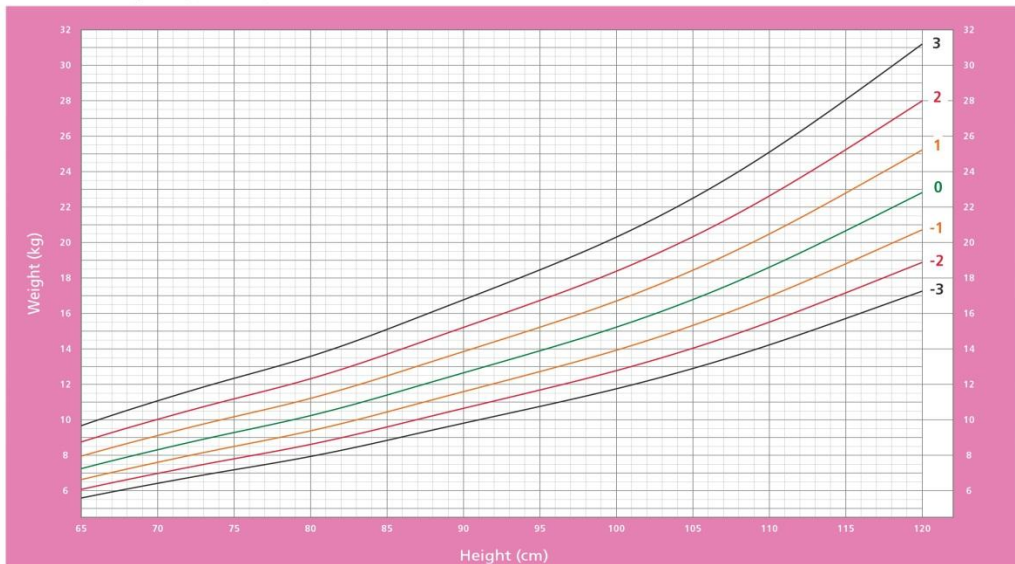
WHO Child Growth Standards

ANNEXURE – V

GANTT CHART - TIMELINE OF ACTIVITIES

ACTIVITY	2012							2013													2014								
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
TOPIC SELECTION	■	■																											
SYNOPSIS PREPARATION & SUBMISSION			■	■																									
REVIEW OF LITERATURE					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
PILOT STUDY						■																							
ANALYSIS &PROFORMA MODIFICATION							■																						
DATA COLLECTION								■	■	■	■	■	■	■	■	■	■	■											
DATA ANALYSIS																		■	■	■	■								
DISSERTATION WRITING																							■	■	■	■	■		
DISSERTATION SUBMISSION																													■

ANNEXURE – VI

PHOTOGRAPHS

PICTURE 1: RECORDING THE WEIGHT OF UNDER FIVE CHILD

PICTURE 2: CHECKING FOR THE BCG SCAR OF THE CHILD

PICTURE 3: INTERVIWING THE MOTHER