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World Vision, Inc

BASELINE NUTRITION SURVEY REPORT

**Ballia Rural Integrated
Child Survival Project
(BRICS)**

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**BALLIA RURAL INTEGRATED PROJECT
(BRICS)
WORLD VISION OF INDIA**

**NUTRITIONAL SURVEY REPORT
1999**

Conducted by

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We appreciate and value the gifts of time, experience and information shared by Dr Shantanu Dutta (Operations Manager, Zonal Office, WVI) and Mr Subodh Kumar (Program Manager, ADP Ballia)

We also express our gratitude to all staff members of ADP Ballia for their cooperation at all stages of data collection, which helped us in timely completion of field work

Our heartfelt appreciation for the support and participation of people in the sample villages

VRIDHHI TEAM



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EXECUTIVE SUMMARY

- Prevalence of **Wasting** among the target group is **16.5%**, **stunting 36.5%** and **underweight children is 42.9%**. All three indices indicate a **high to very high prevalence** of malnutrition in the area, as per standards determined by WHO
- It is to be noted that the study has been conducted in late winter, which is a relatively low-risk season in terms of occurrence of diseases like diarrhea, dysentery, etc. The **situation is likely to worsen in high-risk seasons**, i.e., late summer and monsoon season, when the occurrence of diarrheal and vector-borne diseases is greater
- The study projects the existence of approximately **1658 children** in the age group of 0-23 months who **would be severely wasted** and need immediate corrective measures to restore normal levels of nourishment
- There is a probability of **4,321** underweight children, **65%** of them **severely so**
- Approximately **4,200** children would be **moderately underweight and wasted**, and require immediate preventive intervention, as they are at a greater risk of slipping into the severely wasted and underweight category
- The study projects an **immediate target group of almost 6000 children** who are malnourished, and require preventive and/or corrective care. This is approximately 60% of the total population of children in the age group of 0-23 months
- **Caste groups** where prevalence of malnutrition has been found to be high, are **Harijans, Mallahs, Rajbhars and Chauhans**
- Malnutrition is prevalent in a cross-section of the population, irrespective of the economic status or sibling position of the children
- **Villages** which have a relatively **better nutritional status** are
 - **Deluah**
 - **Durgipur**
 - **Sultanpur**

BACKGROUND

World Vision is a non-profit, international Christian humanitarian organization dedicated to serving the poor and needy through relief and development programs in more than 90 countries of the world. Its vision is to work towards a society transformed through practical expressions of love - a world in which all people will be able to meet their basic needs of body, mind and spirit.

World Vision started its work in India from Calcutta in 1962, and was registered in 1976 with its headquarters in Chennai, as World Vision of India (WVI). Today, WVI helps meet the educational, health and other basic needs of 95,000 children, spread over 565 projects through its **Child Sponsorship, Community Development, Area Development and Emergency Relief and Rehabilitation programs**.

WVI's Area Development Programmes (ADPs) are intended to achieve a wider impact over a larger area, covering a larger population, as compared to most other community development projects. ADP Ballia is one such project.

Ballia Rural Integrated Project (BRICS) is a USAID-funded project of World Vision of India. This project is a component of the Ballia ADP. The Project is operational in Beruarabari block of Ballia district, comprising 83 villages. The strategic objective of the project is to assist the Ballia District CMO, private sector and community partners to accomplish, sustain, document and replicate best practices to reduce fertility and infant, child and maternal mortality through an innovative **Child Survival and Health Improvement Project**.

One of the impact indicators of the project is the reduction in the percentage of children aged 0-23 months who are severely or moderately wasted. The current assignment undertaken by VRIDHHI was to carry out a Nutritional Survey in the project area, to determine the prevalence of malnutrition among children, i.e. to evaluate the percentage of children who are below -2 degree SD and -3 degree SD.

OBJECTIVES AND METHODOLOGY

OBJECTIVES

- To assess the existing nutritional status (prevalence of malnutrition) among children in the age group of 0-23 months
- To find out the percentage of children who are moderately (below -2 degree SD) and severely (below -3 degree SD) malnourished

METHODOLOGY

SAMPLE

The sample size for the study was **326 children** in the age group of **0-23 months**, from 30 villages of Beruar Beri block of Ballia district

SAMPLING

30 villages were randomly selected by the staff of Ballia ADP. Children from each village were then **selected randomly** for anthropometric measurements. The list of sample villages is appended as Annexure A.

MEASUREMENTS

Measurement of growth has been widely used as a tool for the assessment of health / nutritional status of children. Nutritional status of children can be evaluated under three broad headings, namely clinical, biochemical, and anthropometric, the latter being the most practically useful.

For the evaluation of growth performance, the observed level of growth has to be compared with a standard which is considered to best represent "normal" growth. "Normal" growth may be defined as the level of growth which is (and can be) attained by the child when its innate genetic potential for growth finds full expression - in a situation where dietary and environmental constraints to growth are eliminated.

The basic measurements to be considered are

- Age
- Weight
- Height length supine for children aged less than 2 years

The change from measuring supine length to measuring standing height is made at 2 years because at that age the child is generally able to stand up.

INDICES

The above measurements are combined to form **three indices** of nutritional status

- Weight-for-age
- Height-for- age
- Weight-for-height

These indices are then compared with the reference population as recommended by the **National Centre for Health Statistics (U S A)**, and accepted by the **World Health Organization**

TOOLS USED

SPRING BALANCE

A spring balance (similar to Salter 235), with the scale measuring up to a maximum of 25 kgs, with increments of 100 gms, was used to weigh the children. In this type of balance, the child hangs in a specially designed "bag "

TRAY WEIGHING MACHINE

A weighing machine with a detachable tray, with the scale measuring upto a maximum of 10 kgs and increments of 100 gms, was used for weighing newborn babies and infants who could not sit in the cloth bag. In this machine the child lies flat in the tray, which is attached on top of the weighing scale

INFANTOMETER

For measuring the recumbent length (crown-heel length), an infantometer is used. The infantometer has markings starting from a minimum of 44 cms to a maximum of 81cms

KEY TERMINOLOGIES

Given below is an explanation of the key terminologies used in this survey report

WASTING

*A deficit in weight-for-height, as compared with the reference population, is termed **wasting*** It indicates a deficit in tissue and fat mass, compared with the amount expected in a child of same height or length, and may result either from failure to gain weight or from actual weight loss. It may be precipitated by infection or some other household crisis, and usually occurs in situations where family food supply is limited and the food intake of children is low. The determinants will differ in various environments. One of the main characteristics of wasting is that it can develop very rapidly, and under favorable conditions can be restored rapidly.

STUNTING

*A deficit in height-for-age as compared to the reference population is termed **stunting*** It signifies slowing in skeletal growth. The growth rate may be reduced from birth, but a significant degree of stunting, representing the accumulated consequences of retarded growth, may not be evident for some years. Stunting is frequently associated with poor overall economic conditions, especially mild to moderate chronic or repeated infections, as well as inadequate nutrient intake.

UNDERWEIGHT

*Deficit in weight-for-age as compared to the reference population is known as **underweight*** In most populations weight-for-age is fairly well correlated with height-for-age. The two indices weight-for-height and height-for-age together account for more than 95% of the variance in weight-for-age. Underweight (weight-for-age) is therefore a composite measure of stunting (height-for-age) and wasting.

STANDARD DEVIATION OR Z- SCORES

Indicates the deviation of the anthropometric measurement from the reference median. A Z-score up to -2SD indicates a normal condition. A Z-score of < -2 SD (below minus 2 SD) indicates "moderate" malnutrition, and that of < -3 SD (below minus 3 SD) denotes "severe" malnutrition.

However for the purpose of this survey children with a Z score of -2SD and -3SD have also been included in the categories of moderate and severe malnutrition respectively, as these are marginal cases, with high probability of slipping into these categories.

In the population where over nutrition is a problem, the recommended cut off is a Z-score of + 2SD.

**SUMMARY OF TERMINOLOGY AND CUT-OFF POINTS IN
RELATION TO THREE BASIC INDICES**

INDICES	NOMENCLATURE FOR DEFICIT OF INDEX	Z-SCORES OR SD FROM REFERENCE MEDIAN
Weight -for-height	Wasting	<-2
Height-for-age	Stunting	<-2
Weight-for-age	Underweight	<-2

SAMPLE CHARACTERISTICS

1 AGE WISE DISTRIBUTION OF SAMPLE

AGE GROUP (In Months)	NUMBER OF CHILDREN	PERCENTAGE
0 - 4	60	18.4
5 - 8	65	20
9 - 12	77	24
13 - 16	37	11.3
17 - 20	50	15
21 - 24	37	11.3
TOTAL	326	100

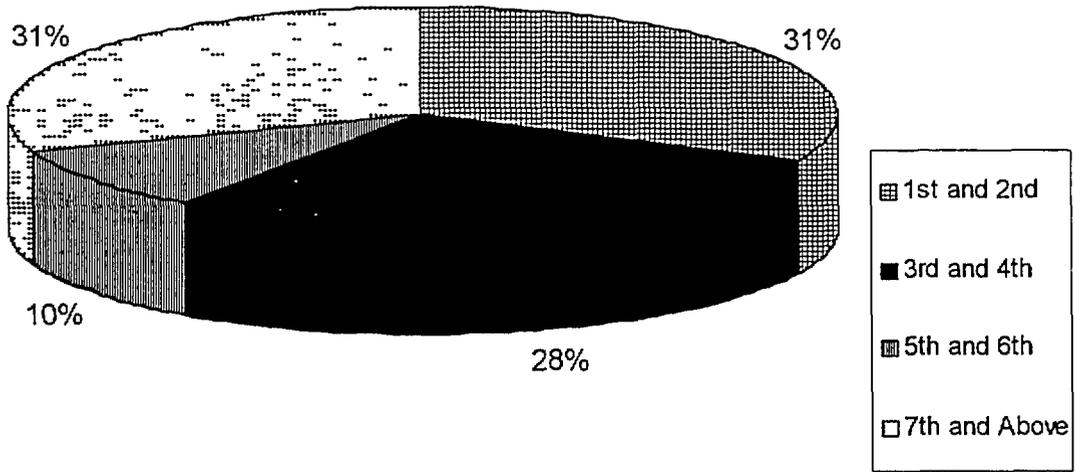
Note: Upper limit of all the categories have been extended to anything less than the next lower limit

2 SIBILING POSITION OF SAMPLE CHILDREN

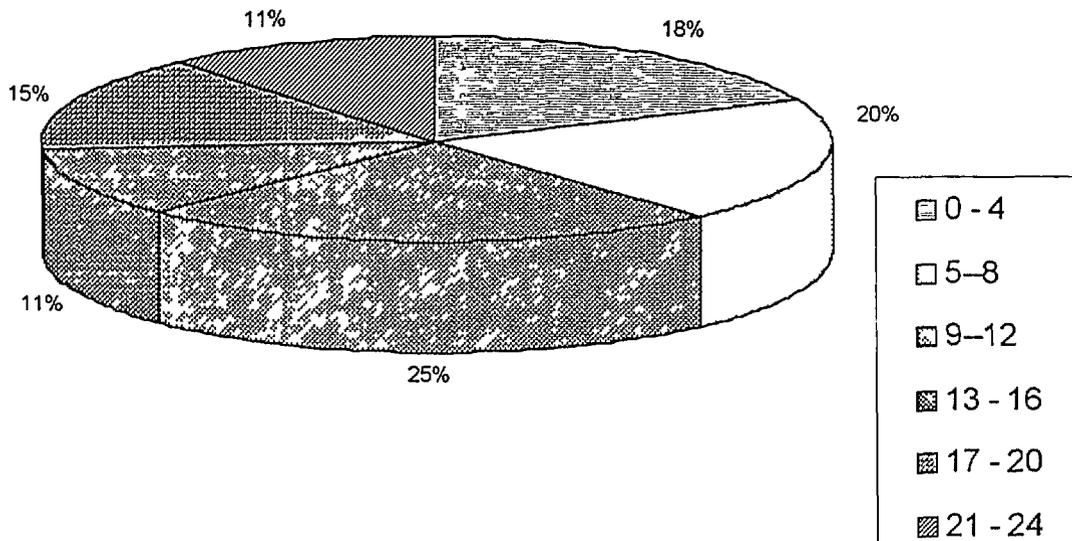
SIBILING POSITION	NUMBER OF CHILDREN	PERCENTAGE
1 st and 2 nd	144	43.9
3 rd and 4 th	126*	38.4
5 th and 6 th	44	13.4
7 th and Above	14	4.2
TOTAL	328*	100

* Including 2 pairs of Twins

SIBLING POSITION OF SAMPLE CHILDREN



AGE WISE REPRESENTATION



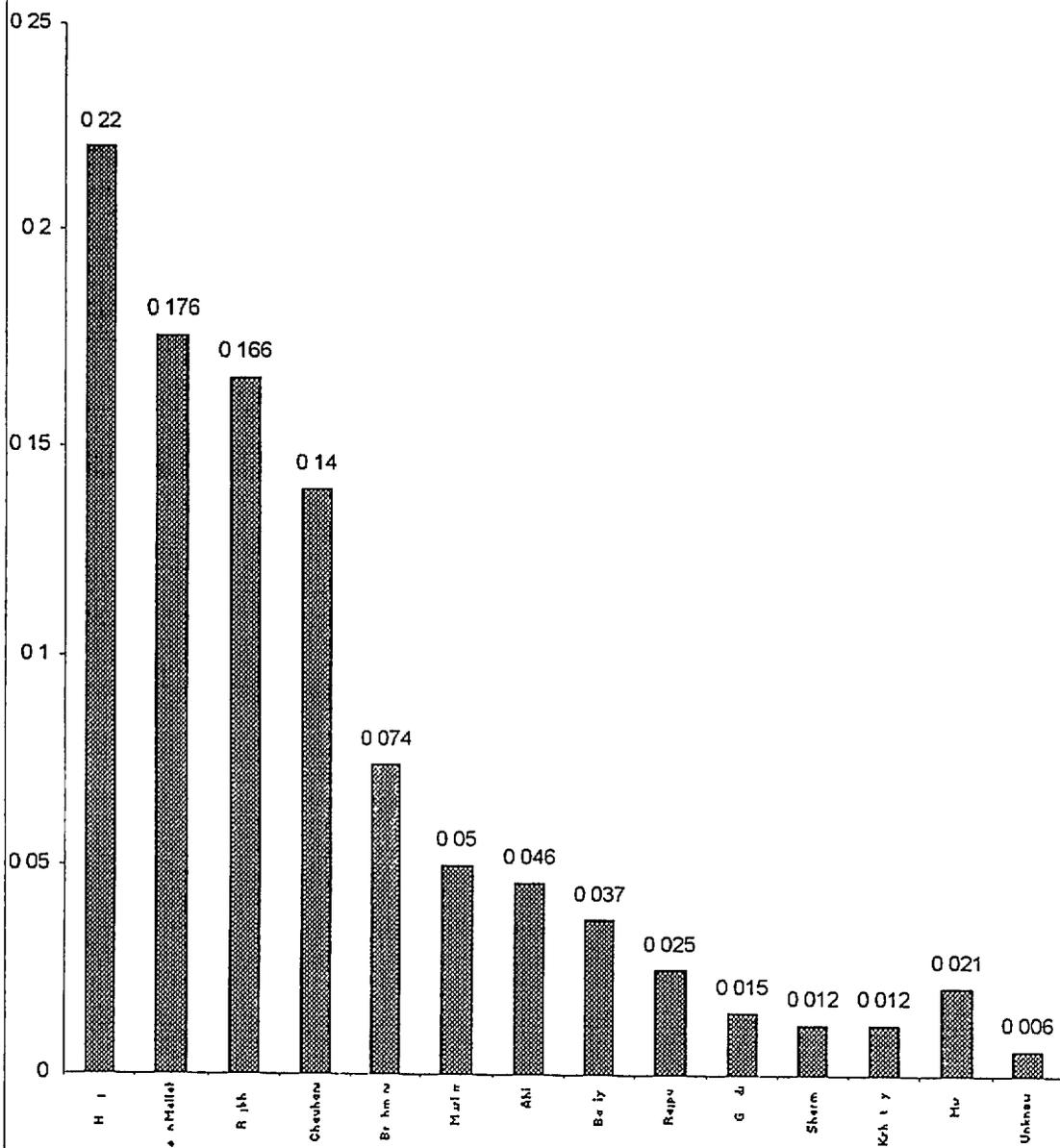
3 CASTE-WISE DISTRIBUTION OF SAMPLE

CASTE	NUMBER	PERCENTAGE
Harijan	71	22%
Been Mallah	57	17.6%
Rajbhar	54	16.6%
Chauhans	45	14%
Brahmins	24	7.4%
Muslim	16	5%
Ahir	15	4.6%
Baniya	12	3.7%
Rajput	08	2.5%
Gonds	05	1.5%
Sharma	04	1.2%
Kshatriya	04	1.2%
Misc	07	2.1%
Unknown	02	0.6%

CONCLUSIONS

- Maximum number of children (22%) surveyed, belonged to Harijan caste, followed by Mallahs (17.5%)
- Miscellaneous caste group include Bansphodia, Choudhary, Gaurs, Kaanu, Kohiri, Kumhar, Lohar, and Verma
- Sharmas and Kshatriyas were the least represented groups

CASTE WISE DISTRIBUTION OF SAMPLE



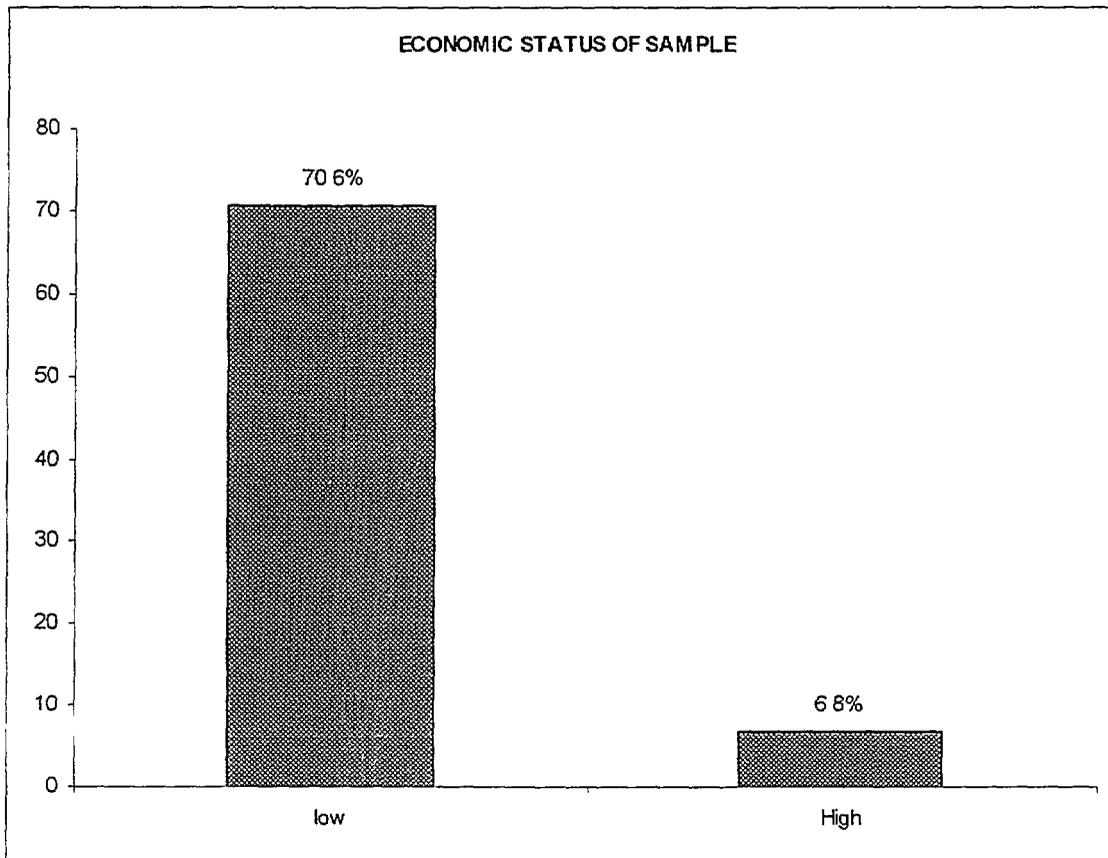
4 ECONOMIC STATUS* OF SAMPLE

ECONOMIC BRACKET	NUMBER	PERCENTAGE
Low	187	70.6%
High	18	6.8%

*There was no elaborate mechanism to evaluate the economic status of the sample therefore Type of House (kutch/pucca) availability of T V Radio Vehicle Cattle Toilet and Electricity were taken as indicators to determine the same

CONCLUSIONS

- 70.6% of the sample families belonged to low economic strata
- 6.8% belonged to relatively high economic strata, with pucca houses, furnished with televisions, radios and own vehicles



STATUS OF MALNUTRITION

1 STATUS OF WEIGHT - FOR - AGE

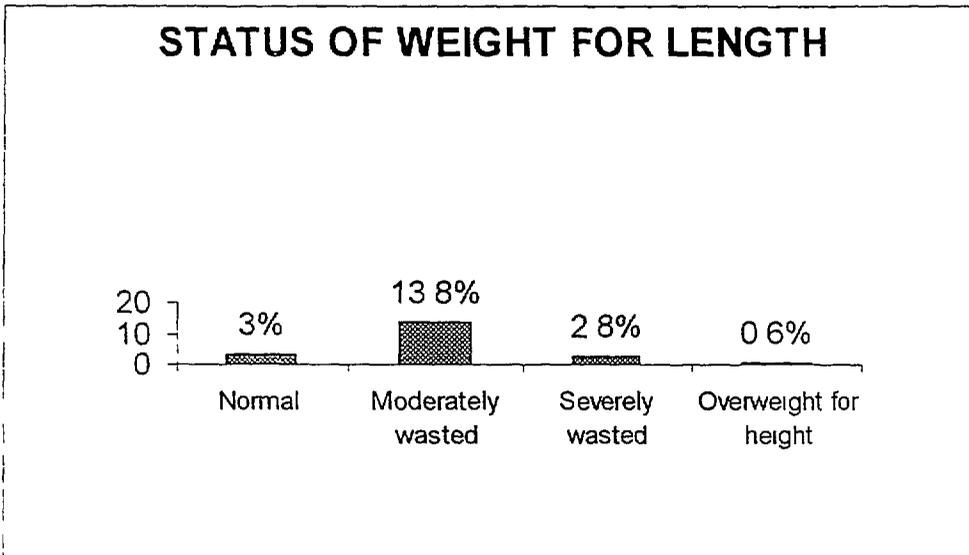
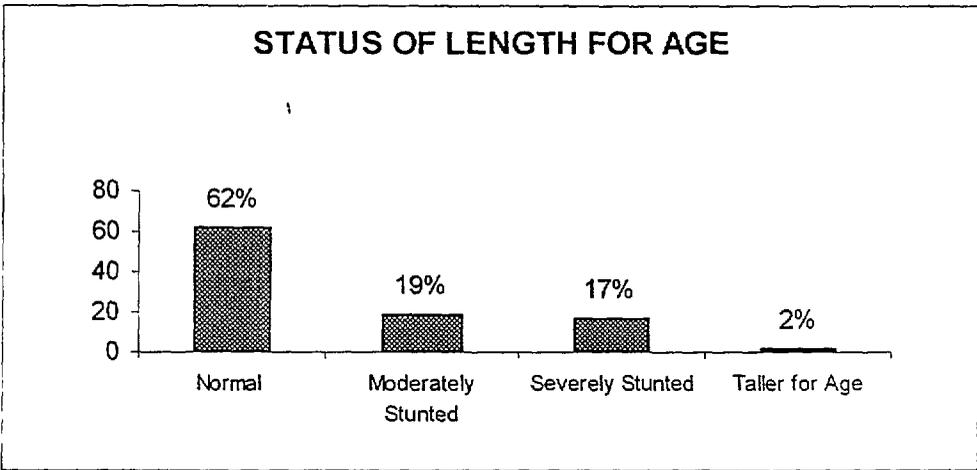
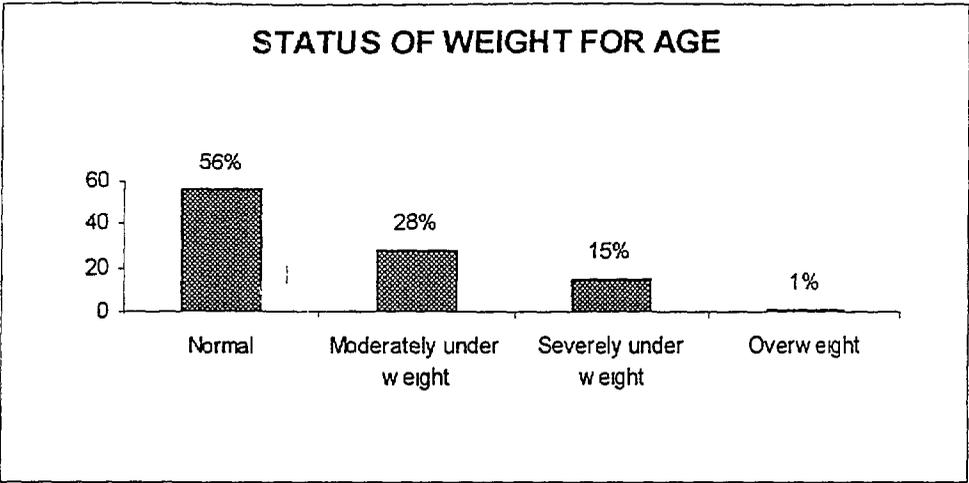
NUTRITIONAL STATUS	NUMBER OF CHILDREN	PERCENTAGE
Normal	183	56%
Moderately under weight	91	28%
Severely under weight	49	15%
Overweight	3	1%

2 STATUS OF LENGTH - FOR - AGE

CATEGORY	NUMBER	PERCENTAGE
Normal	202	62%
Moderately Stunted	63	19%
Severely Stunted	56	17%
Taller for Age	5	2%

3 STATUS OF WEIGHT - FOR - LENGTH

CATEGORY	NUMBER	PERCENTAGE
Normal	270	3%
Moderately wasted	45	13.8%
Severely wasted	9	2.8%
Overweight for height	2	6%



*RELATIVE PREVALENCE OF LOW ANTHROPOMETRIC VALUES

INDEX	LOW	MEDIUM	HIGH	VERY HIGH
Low WH	<5 0%	5 0-9 9%	10 0-14 9%	≥15 0%
Low HA	<20 0%	20 0-29 9%	30 0-39 9%	≥40 0%
Low WA	<10 0%	10 0-19 9%	20 0-29 9%	≥30 0%

* Source *EpiInfo, World Health Organization, Geneva*

PREVALENCE OF LOW ANTHROPOMETRIC VALUES OF SAMPLE

INDEX	PREVALENCE	STATUS
Wasting (Low WH)	16 5%	Very High
Underweight(Low WA)	42 9%	Very High
Stunting (Low HA)	36 5%	High

CONCLUSIONS

- The data show a very high prevalence of wasting and underweight children in the community
- Prevalence of stunting is also high. However height is influenced more by genetic factors than environmental factors
- Children who are moderately and severely under weight and need immediate special attention, constitute 28% of the sample
- Surprisingly a few cases (3) of overweight children were also registered, although it formed only 1% of the sample size, but revealed the existence of other extreme in the community
- 36% of the children were moderately and severely stunted, i.e. their height is much less for their age
- Moderately and severely wasted children comprised 16%. That means these children have less weight for their height

4 SIBLING POSITION AND MALNUTRITION

SIBLING POSITION	UNDERWEIGHT	STUNTED	WASTED
1&2	55 (38 1%)	52 (36 1%)	22 (15 2%)
3&4	62 (49 2%)	47 (37 3%)	24 (19%)
5&6	21 (48%)	16 (36 3%)	6 (14%)
7&ABOVE	4 (28 5%)	6 (43%)	2 (14 3%)

CONCLUSIONS

- There appears to be no correlation between sibling position of the children, and their nutritional status
- Data reveal that the prevalence of wasting is, infact, more in the case of 3rd and 4th born children
- Perhaps the young age of parents, especially mothers, and lack of awareness contributes more to the health of the child

5 SEXWISE STATUS OF MALNUTRITION

SEX	UNDERWEIGHT	STUNTED	WASTED
MALE	63(45%)	58 (48 7%)	28(51 8%)
FEMALE	77(55%)	61(51 2%)	26(48 1%)

TOTAL	140	119	54
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CONCLUSIONS

- Data show clearly that more females (55%) than males are underweight
- 51.2% of the females are stunted, compared to 48.7% males. However, it is to be borne in mind that height is influenced largely by genetics, and males are generally taller than females
- There is not much difference in the percentage of males and females, as far as wasting is concerned. Males are slightly higher in number (51.8%) as compared to females (48.1%)

6 WEANING STATUS

EARLY WEANING (Before 6 Months)		PROLONGED WEANING (Later Than 6 Months)	
Male	Female	Male	Female
5	7	17	22
Total 12		Total 39	

CONCLUSIONS

- The study shows that one aspect which requires widespread awareness and propaganda, is weaning
- The sample reveals that **17%** of children have a **delayed weaning** (i.e., are kept on breast milk only, for up to 24 months in extreme cases) On the other end are **12.4%** children who are **weaned prematurely** (i.e., before 6 months)
- Both these situations can cause severe malnourishment in children. Delayed weaning deprives the child of vital nutrients that are available in semi solid and solid foods like vegetables, grains, cereals, pulses etc. Early weaning, on the other hand, leaves the child's immune system weak and consequently the child fails to fight infection and disease

7 VILLAGE PROFILES

7 1 OVERALL NUTRITIONAL STATUS OF SAMPLE VILLAGES

VILLAGE NAME	STUNTING			WASTING			UNDERWEIGHT		
	N	M	S	N	M	S	N	M	S
AADAR	7	1	2	9	1	0	8	1	1
	70%	10%	20%	90%	10%	-	80%	10%	10%
AASCHARA	6	3	2	8	2	1	5	1	5
	54 5%	27 2%	18 2%	72 7%	18 2%	9 1%	45 4%	9 0%	45 4%
BHOJPUR	9	1	2	8	1	3	6	3	3
	75%	8 3%	16 6%	66 6%	8 3%	25%	50%	25%	25%
BHANWARPUR	4	2	2	7	1	0	6	2	0
	50%	25%	25%	87 5%	12 5%	-	75%	25%	-
BARWA	3	4	4	11	0	0	4	6	1
	27 2%	36 3%	36 3%	100%	-	-	36 3%	54 5%	9 0%
BARKHARA	5	3	3	9	2	0	4	4	3
	45 4%	27 2%	27 2%	81 8%	18 2%	-	36 3%	36 3%	27 2%
BADASARI	6	3	0	9	0	0	5	4	0
	66 6%	33 3%	-	100%	-	-	55 5%	44 4%	-
CHHITRAULI	9	3	0	9	3	0	8	4	0
	75%	25%	-	75%	25%	-	66 6%	33 3%	-
DURGIPUR	10	1	1	12	0	0	8	4	0
	83 3%	8 3%	8 3%	100%	-	-	66 6%	33 3%	-
DELUAH	8	2	0	10	0	0	8	2	0
	80%	20%	-	100%	-	-	80%	20%	-
DHANAUTI	7	1	5	11	2	0	4	5	4
	53 8%	7 6%	38 4%	84 6%	15 3%	-	30 7%	38 4%	30 7%
DATIWAR	6	1	2	7	2	0	6	1	2
	66 6%	11 1%	22 2%	77 7%	22 2%	-	66 6%	11 1%	22 2%
MAIRITAR	12	3	4	12	5	2	10	3	6
	63 1%	15 7%	21 0%	63 1%	26 3%	10 5%	52 6%	15 7%	31 5%
MISRAULIA	10	1	1	9	3	0	6	5	1
	83 3%	8 3%	8 3%	75%	25%	-	50%	41 6%	8 3%
KHADELA	6	3	3	10	2	0	5	6	1
	50%	25%	25%	83 3%	16 6%	-	41 6%	50%	8 3%
KETHAULI	8	0	2	7	3	0	7	2	1
	80%	-	20%	70%	30%	-	70%	20%	10%
KESRIPUR	8	3	0	10	1	0	8	3	0
	72 7%	27 2%	-	90 9%	9 1%	-	72 7%	27 2%	-
KARAMER	3	2	4	9	0	0	3	4	2
	33 3%	22 2%	44 4%	100%	-	-	33 3%	22 2%	44 4%
SUKHPURA	20	5	7	28	2	2	20	6	6
	62 5%	15 6%	21 8%	87 5%	6 25%	6 25%	62 5%	18 75%	18 75%
SHIVPURA	8	2	0	8	2	0	4	6	0
	80%	20%	-	80%	20%	-	40%	60%	-
SHIVRAMPURA	6	5	2	11	2	0	7	4	2
	46 1%	38 4%	15 3%	84 6%	15 4%	-	53 8%	30 7%	15 3%
SIMRIRAMPUR	8	2	1	9	2	0	9	1	1
	72 7%	18 1%	9 0%	81 8%	18 2%	-	81 8%	9 0%	9 0%
SURYAPURA	6	3	4	9	4	0	6	3	4
	46 1%	23 0%	30 7%	69 2%	30 8	-	46 1%	23 0%	30 7%
SHAODI	7	2	9	1	0	6	3	1	
	70%	10%	20%	90%	10%	-	60%	30%	10%
SULTANPUR	12	1	1	12	2	0	11	2	1
	85 7%	7 1%	7 1%	85 7%	14 2%	-	78 5%	14 2%	7 1%
RAJPUR	8	2	2	11	1	0	6	4	2
	66 6%	16 6%	16 6%	91 6%	8 3%	-	50%	33 3%	16 6%
TAHDILA	5	5	0	8	1	1	6	2	2
	50%	50%	-	80%	10%	10%	60%	20%	20%

7 2 STUNTING

VILLAGE NAME	NUMBER OF CHILDREN	PERCENTAGE
SUKHPURA	12	10
BARWA	8	67
MAIRITAR	7	59
SHIVRAMPUR	7	59
SURYAPURA	7	59
BARKHARA	6	5
DHANAUTI	6	5
KARAMER	6	5
KHADELA	6	5
AASCHARA	5	42
TAHDILA	5	42
BHANWARPUR	4	34
RAJPUR	4	34
AADAR	3	25
BHOJPUR	3	25
BADASARI	3	25
CHHITRAULI	3	25
SIMRIRAMPUR	3	25
SHAODI	3	25
KESRIPUR	3	25
DATIWAR	3	25
DELUHA	2	17
DURGIPUR	2	17
SHIVPURA	2	17
SULTANPUR	2	17
MISRAULIA	2	17
KETHAULI	2	17

7 3 WASTING

VILLAGE NAME	NUMBER OF CHILDREN	PERCENTAGE
MARITAR	7	13
BHOJPUR	4	7 4
SUKHPURA	4	7 4
SURYAPURA	4	7 4
AASCHARA	3	5 5
CHHITRAULI	3	5 5
MISRAULIA	3	5 5
KETHAULI	3	5 5
BARKHARA	2	3 7
DHANAUTI	2	3 7
SHIVPURA	2	3 7
SHIVRAMPURA	2	3 7
SIMRIRAMPURA	2	3 7
SULTANPUR	2	3 7
KHADELA	2	3 7
TADILLA	2	3 7
DATIWAR	2	3 7
AADAR	1	1 8
BHANWARPUR	1	1 8
SHAODI	1	1 8
RAJPUR	1	1 8
KESRIPUR	1	1 8
BARWA	0	0
BADASARI	0	0
DELUHA	0	0
DURGIPUR	0	0
KARAMER	0	0