Nutrition survey establishing the extent of malnutrition and validating the high malnutrition rates in in children aged 6 to 59 months and- pregnant and lactating women in the World Vision operating areas of Northern Sindh. Research to identify the immediate and underlying causes.

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Acronyms

ARI	acute respiratory illness
BCC	behavior change communications
BHU	basic health unit – first level facility in communities – one per union council
CIDA	Canadian International Development Assistance
CMAM	community- based management of acute malnutrition
DCO	District Commissioners Office
GAM	global acute malnutrition (SAM + MAM cases/ rates)
HFA	height for age – measures stunting
HH (s)	Household (s)
IEC	information exchange communications
Kecheri	mixture of Dahl and rice
MAM	moderate acute malnutrition
MUAC	mid upper arm circumference
NADRA	National Database and Registration Authority
NIC	National identity card
OFDA	Office of Foreign Development Assistance
PC I	Government project document
PK Rs	Pakistan Rupees (exchange rate : I USD: 90.2 Pk Rs in December)
PLW	Pregnant and lactating women
RCC	Reinforced concrete construction
SAM	severe acute malnutrition
TB	tuberculosis
UC	union council
UNICEF	United Nations International Children's Emergency Fund
WASH	water and sanitation and hygiene
WFH	Weight for height- measures wasting
WRA	women of reproductive age
WV	World Vision
Z score	standard deviation from healthy mean.

Executive Summary

The study aimed to identify the extent of malnutrition in the World Vision (WV) nutrition intervention sites and catchment areas. WV staff conducted a greater coverage screening in 13 union Councils (UCs) of two districts Sukkur and Khairpur, on the basis of it's Community Management of acute Malnutrition (CMAM) program operating areas.

The result of screening 23,505 children aged 6-59 months using mid – upper arm circumference (MUAC) measurement showed in annex 1.

- 9% severe acute malnutrition (SAM) (<11.5cm),
- 20% moderate acute malnutrition (MAM) (12.5 cm to 11.5 cm).
- Out of 4,206 pregnant and lactating women (PLW) screened staff identified
- 29% as suffering moderate acute malnutrition (MAM).

Staff conducted a small sample survey of 274 households to validate the results of the initial screening and to explore the underlying causes of the malnutrition. As the physical houses and yards contained joint families the survey ended up measuring 762 children in the age group, double what was expected in regard to children in the age bracket for that number of single households.

Some data was discarded as outliers at the individual measurement analysis stage (and across the HH survey in appended tables) which explains why in the body of the report the total number of children measured varies from analysis of one set of measurements to another. At the end of the report the team has cross verified this approach by discarding any household's data at the start and keeping a consistent number of children as the base across the analysis. Some small variation occurred but not enough to discount the general findings and analysis using either data cleaning approach.

Among 620 children aged 6-59 months assessed in the sample survey for height for age

- only 18% of the children were seen as greater than minus two standard deviations (>-2Zscore) below the anticipated measurements.
- This leaves 82% with some degree of stunting and among those
- 429 children (69%/620) were measured at greater than three standard deviations below the anticipated measurements (under -3 Z scores) indicating severe stunting.

The findings were similar for boys as they were for girls in the disaggregated data

To confirm these alarming figures staff analyzed the SAM cases at the intervention sites height for age and came up with not dissimilar figures regarding stunting amongst the SAM cases.

Out of 712 children measured for weight for height (wasting)

- 180 (25%) showed severe malnutrition (<-3SD), two and a half times above what is considered the critical level of (10%)
- A further16% (111) were under -2SD measures for weight for heath indicating moderate acute malnutrition.

Rates for girls and boys were the same for severe wasting however moderate wasting was higher (66% compared to 44%) for girls than in the boy's sample.

Out of 762 children measured for acute malnutrition using MUAC tape,

- 69 (9%) were recorded with severe acute malnutrition and
- 122 (16 %) were recorded with moderate acute malnutrition.

This is the same SAM rate as in the greater screening but less MAM cases than recorded in the greater screening.

Social Determinants underlying Malnutrition

Most of the population belongs to low income groups, mainly laborers working on daily wedges, a third live in one room only, and most of the houses have (76%) an unpaved floor. Given that more children were found in the age group in each compound this means that large extended families are living in cramped quarters. The majority of the households have at least one buffalo or goat, and electricity. The source of fuel is fire wood and kerosene oil 36% cases each and 24% use other fuel including tyres, papers and dried date leaves. Household income was averaged at 9000 Rs per month per household however this resource to appears to have stretched to a large or extended household population.

Most of HHs have access to bore water at their house (77%), the rest have access to other sources such as unprotected wells or public tube wells while 54% never treated water and 33 % always treat water to make it safe for drinking purposes. The Safety of water was not physically measured in the study. Among the HH surveyed only 27% use the flush toilet system while 29% are practicing open defecation.. The important positive practices included hand washing after using toilet and before meal is 96% and 94% respectively, however 57% of the respondents reported using water with soap. This needs to be verified as the questions may have been somewhat leading, however it may also link to the fact that ARI rather than diarrhea is the more prevalent health concern recorded at BHUs. The bore water may also be clean but this should be tested – for bacterial and chemical contaminants.

The food intake was measured in frequency and for the type of food during last 24 hours, 26% and 28% women of reproductive age (WRA) eat three and four times a day respectively, and 10% less than twice a day. The quality of food is poor across all the daytime meals, mainly tea with Roti or bakery items, followed by (nearly 50% of the respondents who takes tea with roti or bakery items) a single meal with rice and pulses and vegetable with roti.

The frequency food given to children was 21% only 1-3 times, with highest frequency was 18% (7times), and 38% at least six times . The main food given to child was either breast milk or other milk, followed by tea with roti or bakery, once a day similar no of children have rice only and vegetables with roti. The major of diet of children in the age group appeared to be limited to bread and milk as well as tea.

Breast feeding was common but colostrum was given to 77% of the children, and 38 % mothers gve exclusive breast feeding less than six months while 15% never and 27% and 19% mothers give only breast milk to children 6 months to one year and over one year. This is confirmed by figures for age of child for introducing complementary food, which is 42% less than 6months and is mostly fresh milk, only 22% introduce food for children age 6 months to one year. In addition to milk honey water is given to 39% children age less than 6 months and 36% have no knowledge about complementary food. Only 16% of mothers prepare food separately for children and 35% never prepare food especially for child.

To assess malnutrition among WRA, 225 women interviewed had experience of at least one pregnancy, 37% had 4-6 times, and 20% 7-9 and 7% had 10 or more pregnancies. The risk of malnutrition and pregnancy and birth related risk increases with the number of pregnancies, in total 5% had miscarriage, while 2% had

experienced stillbirth, analyzing the individual outcome of pregnancy eight women have experience of at least one miscarriage and seven had two, and four WRA had three miscarriages. Similarly eight women had one stillborn child and four had two stillborn children. WRA reported weakness with headache (11%), worm's infestation (16%) and hospitalization (18%).

Morbidity among children aged 6-59 months, had similar pattern reported in the health facilities during same period, Cough and difficult breathing (ARI) was at top (n=60), followed by diarrhea (n=34) and fever (23%). Mothers (25%) reported worm's infestation among children over last six months while 41% were not aware of worm infestation. Among children survey 68% had all vaccination, 8% had no vaccination and 23% mothers were unaware of the vaccination.

Recommendations

Initiate integrated program to focus on

* Advocacy for approval of already drafted Sindh PC1 for Nutrition CMAM
* Support Development of a multi-sector umbrella PC1 for an integrated program addressing the underlying causes of malnutrition – WASH, Health including diet awareness, Livelihoods, Food security (access and variety), Food (micronutrients) and school health and nutrition
* Building government capacity to recognize malnutrition (including growth monitoring), refer and treat
* Introduction and training of multipurpose staff at health facility in nutrition screening every child seeking health care at the facility through integrated Management of childhood illness
* Inclusion and analysis of nutrition status as part of routine case management at facility level
* Further investigate HH practices regarding WASH, dilution of fluids (ie cows milk) for children's diet
* Including Men for awareness and support to pregnant and lactating women and women of reproductive age and children for adequate diet as well as birth spacing, antenatal and post natal care health seeking, safe delivery and general child wellbeing.
* Effective exclusive breastfeeding 0-6 months
* Complimentary feeding and proper diet for children aged 6months to two years of age
* Hygiene awareness and practices
* Improved young girls and women of reproductive age nutrition
* Enhanced community participation in malnutrition detection and care and prevention. Especially with regard to mothers, caregivers and decision makers ability to understand monitor and the health of their children.
* Targeted food distributions/ subsidies and liveliehood improvement program for vulnerable families where economics and food access are the underlying causes of malnutrition. Consider for families with pregnant and lactating mothers
* Promoting linkages to social welfare support mechanisms for extremely vulnerable families
* Addressing factors affecting maternal health and contributing to childhood malnutrition i.e. high fertility rates, high levels of anemia, high incidences of miscarriages and still births and maternal morbidity.
* Explore Design and support strategies in empowering families to address social determinants of poor health outcomes such as low socio-economic status, illiteracy and food insecurity
* prevention and management of childhood illnesses, ARI, Diarrhea, malaria and vaccine preventable diseases micronutrient intervention (Vit A, iron, folic acid, iodine) to reduce the complications leading to mortality or increased malnutrition.

- For accurately measuring stunting in children into the future considerable efforts should be made to ensure children's births are registered within a week and one month of delivery. This should be a clear recommendation for any partner working on nutrition into the future.
- Research rates of diarrhea/ population and in comparison to other areas in Pakistan as well as further investigating the drinking water purity and treatment practices
- Research and advocacy regarding food security access issues

Operational /Implementation level

Health facility at the community

- Facility based outreach team and/or community based weighing of children ages 0-3years , interpretation of growth curve and counseling for mothers to identify causes of poor growth and support her in remedial actions and referral to nearest health facility
- Outreach visits/follow-up of specific cases referred to hospitals
- Support and promote early birth registration
- IMCI to include nutrition screening and treatment.
- Health Hygiene and diet awarenesss BCC and IEC materials – shown and counseled at facilities and in oput reach
- Use screening at facilities for promoting inclusion of vulnerable children's families in social welfare and targeted assistance packages
- Form male support groups for mothers and child well-being
- Introduce newly wed and couples counseling regarding mother and child well being
- Ensure EPI coverage.

Community /household level

- Focus BCC on early and exclusive breast feeding 0-6months and continuity of breast feeding till 24 months
- Addressing the underlying causes to reduce risk of anemia in pregnant women
- Further research on exploring promoters/positive practices in nutrition for women and children
- Improving general awareness of a healthy diet and eating practices
- Improve local access to a varied diet. – promote kitchen gardens and cottage diversified income sources including promoting women's economic opportunities and value chain
- Explore deworming and micronutrient programs
- Improve food and personal hygiene practices
- Investigate and improve water quality
- Introduce savings schemes

1. BACKGROUND

Sindh is the most southern and the third largest province of Pakistan with an area of 140 915 km. The capital of Sindh is Karachi. The province is divided into 23 districts composed of 122 tehsils subdivided into 1,096 union councils. According to the Federal Bureau of Statistics 2010 estimates, Sindh population approximates 40 220 547 inhabitants and that is mostly urban. The Main cities are Hyderabad, Larkana, Thatta, Nawabshah, Mirpurkhas, Tando Adam, Tando Allahyar, Shikarpur and Sukkur. Seventy percent of the population speak Sindhi, but Urdu and Rajasthani (in some areas) are also common

Khairpur and Sukkar are two among three districts where World Vision Pakistan started humanitarian emergency activities after the 2010 floods and remained to building on relief with early recovery activities. As these districts were previously identified as low human development index rated, World Vision intentionally targeted these affected districts with an idea to build up to development projects in the most undeveloped areas.

Khairpur District is located in northern Sindh and is bound on the north by Shikarpur and Sukkur, on the east by India, on the south by Sanghar and Nawabshah and on the west by Larkana and Naushahro Feroz. According to the 1998 census of Pakistan, the district had a population of 1,546,587 of which 23.23% was urban. The average annual growth rate of the population is 2.71%. Khairpur is noted for its bountiful harvest of dates. However, the soil is suitable for many cash crops including cotton and wheat. The dry, hot climate makes the fruit very sweet, supple and juicy. It is very hot and sunny during the summer and cold in winter. The main institutions of higher education in Khairpur district are Shah Abdul Latif university, Mehran engineering college, women college, Mumtaz College and Superior Science College.

Sukkur district is divided into 4 administrative strata (tehsils), namely; Sukkur City, Rohri, Saleh Pat and Pano Aqil. According to the official census of 1998, Sukkur city had 908,370 inhabitants and a population density of 175.9 persons per square kilometre. With a 2.88% annual growth the Sukkur population has surpassed 1 million. According to the 2010 estimations of Pakistan, at least 59.50% of the population of Sukkur district was urban, making it the third-most urbanized district in Sindh.

In the two districts, World Vision is in the process of establishing an integrated programming model based on its experience across the globe. One of the key sectors for this model is health & nutrition. World Vision has started emergency response in health & nutrition back in September, 2010 with support from DEC for ten mobile clinics and ten nutrition sites. In February 2011, WV with OFDA funding support continued increasing the number of sites to thirteen Community based Management of Acute Malnutrition (CMAM) sites and a Stabilization Center (SC). Currently, UNICEF and WFP have supported WV to increase CMAM sites from thirteen up to twenty with continued support for the stabilization center.

1.1 Scope of the problem:

Last year, after flood 2010, UNICEF with MOH conducted nutrition survey "Flood Affected Nutrition Survey (FANS) in Oct-Nov, 2010. In Sindh, flood affected areas in North and South Sindh were included. According to this nutrition survey, in some flood affected areas of Sindh, Global Acute Malnutrition (GAM)rates were 22.9% and 21.2% in Northern and Southern Sindh respectively. Severe Acute Malnutrition (SAM) of 6.1% and 2.9% in Northern and Southern Sindh was recorded respectively. These GAM rates exceed the emergency threshold of 15%, thus confirming existence of a critical emergency nutrition situation in Sindh province, according to WHO categorization. In November 2011, UNICEF in consultation with MoH published the National Nutrition survey (NNS 2010). The Aga Khan University carried out the survey across Pakistan with a

sample of 30,000 households. As per reports from this survey, around 60% of Pakistan's total population is facing food insecurity. The results of the survey, termed by health experts as "alarming", indicate a significant decline in the nutritional status of the people of the country over the past decade. The report stated that iron deficiency (anemia) and vitamin A deficiency remains widespread in the country; however, iodine deficiency rate had reduced during the last decade. Other important nutritional indicators measured by the survey included maternal anemia at 49%, night blindness 16%, child stunting level 43%, while wasting among children (child's weight-for-height measured less than -2 standard deviations from the mean) was found to be 13%.

Other startling figures from the survey revealed that 12.5 percent of women were malnourished, with the figure jumping to 16.1 percent for lactating mothers; 6.5 percent of school children aged six to 12 years were found to have palpable or visible goiter, with the percentage rising to 21.2 in the case of mothers; while 22.9 percent of school children and 36.5 percent of mothers were found to be severely iodine-deficient.

1.1.Rationale for survey:

In Khairpur and Sukkar, WV established CMAM nutrition sites in both flooded and the adjacent non-flooded areas in the two districts. During the implementation of this CMAM project, World Vision was able to quickly find patients to meet the numbers projected according to the FANS rates. The number of malnourished patients being seen was much higher than expected and it was anticipated that the funded project would service a higher target than that was set based on FANS 2010 findings. The targets planned and the progress made till October 15, 2011 were as under:

Tab 1.1 CMAM Program Coverage

WV CMAM Program coverage in Khairpur & Sukkur for population of 296492

Expected SAM targets based on FANS 2010 (6%)	SAM Targets achieved (Please, note 25-30% of the population still to cover)	MAM targets expected-(15%)	MAM targets Achieved	PLW with Moderate Acute Malnutrition (8%)	MAM PLWs registered with the program
2668	**2368**	**6671**	**5158**	**3084**	**2037**

The purpose of showing this comparison is to indicate that the project targets achieved in October were nearly equal to what was projected based on FANS 2010 but with only 70% - 75% of the population coverage

Thus, in order, to establish the actual extent of malnutrition in the World Vision operational areas and set higher targets for comprehensive coverage, the program technical team planned a greater coverage screening. This included screening of all children age 06-59 months and pregnant and lactating women in the catchment population. More than 50% of the population was covered for screening through door to door blanket survey of children in the age group. World vision trained community health workers screened 6 months – 59 months age children using Mid upper arm circumference (MUAC) tape. The trained staff accessed 23,764 households (housing 163,932 individuals) in the thirteen nutrition sites of both districts over a period of two weeks days. The outreach staff screened 23,505 children aged 06-59 months using MUAC tape which resulted in identified 9% severe acute malnutrition (SAM) cases and 20 % moderate acute malnutrition MAM, based on the SAM and MAM criteria of <11.5cm and <12.5 cm to 11.5 cm respectively for middle upper arm circumference measurement. For Pregnant and lactating women (PLW), staff screened 4206 PLW revealing a 29% MAM rate based on MAM criteria for PLWs of <21 cm upper arm circumference measurement.

Malnutrition status	All
	n = 23,505
Global Acute Malnutrition (< 125 mm)	(6855) 29%
Moderate Acute Malnutrition (≥115 mm and <125 mm)	(4729) 20%
Severe Acute Malnutrition (<115 mm)	() (2026) 9%

These quite high and alarming figures based on MUAC , suggested the need for a detailed survey to validate these results as well as to identify the underlying and immediate causes of malnutrition.

After establishing the extent of malnutrition in PLWs and children aged 6-59 months in the area, WV decided to have long term programming to address the underlying causes for which it was necessary to research the contributing factors to this critical level of malnutrition in the concerned districts. . In this connection, the technical team designed a research study.

2. METHODOLOGY:

Initially, staff completed the greater coverage survey in all 13 Union Councils of Sukkur and Khaipur where WV was implementing the CMAM projects. The areas included were both flooded and adjacent non-flooded areas, and both urban and rural areas. Some of these areas had harbored IDPs during the 2010 Flood.

Tab 2.1 Geographical areas

District	Tehsil	UC	Flooded in 2010	Flooded in 2011	Neighboring flooded areas in 2011	Rural	Urban
Khairpur	Kingri	A. R Unar	Yes	Yes	Yes	Rural	no
	Khairpur	CD Jelani	NO	No	No	no	Urban
	Kot digi	Deh sohu	No	Yes	No	Rural	no
	Kingri	Drib Mehar Shah	No	No	Yes	Rural	no
	Khairpur	Faizabad	No	No	No	no	Urban
	Kotdigi	Fatehpur	Yes	Yes	Yes	Rural	no
	Kingri	Hadal Shah	Yes	Yes	Yes	Rural	no
	Khairpur	Khairpur	No	no	no	no	Urban
	Kairpur	Khirpur Mirs	No	no	no	no	Urban
	Kot Digi	Kot Diji	No	no	no	Rural	no
	Kotdigi	Layari	No	no	no	Rural	no
	digi	Pir Jo Goth	Yes	no	Yes	Rural	no
	Kingri	Sardar ji Bhati	Yes	Yes	Yes	Rural	no
Sukkur	Panu Aqil	Dadloi	No	Yes	No	Rural	no
	Panu Aqil	Hingora	Yes	no	Yes	Rural	no
	Panu Aqil	Nooraja	Yes	no	Yes	Rural	no
	Panu Aqil	Panu Aakil	No	no	No	Rural	no
	Panu Aqil	Sanghi	No	no	No	Rural	no

In the survey, There is no demarcation made between flood and non-flood affected areas and between rural and urban other than in the table above. This analysis can be done separately on the greater coverage screening results to ascertain whether there is variance between the different areas and levels of malnutrition. The initial need was to develop a general understanding of malnutrition in the WV intervention areas. In the greater coverage survey staff attempted to access all the households including both single and combined families in the thirteen union councils, based on the expanded program of immunization (EPI) data retrieved from the basic health units (BHUs).

This population data appears in annex I and was, as expected, different from that received from the DCO office based on the 1998 census. Staff left some of the HHs un-accessed because of security concerns , however it is estimated that staff accessed more than 90% of the HHs in the intervention area screening all of the children present at the time of the visit, and reported as aged 06-59 months. Staff carried out the greater coverage screening with MUAC and the team established the initial findings for SAM, MAM and MAM PLW..

The great coverage survey combined with the extended research makes the study design both cross sectional and action research in nature. For the detailed survey, for validation and to determine the underlying causes of malnutrition, a smaller sample was taken from the house hold list of the greater coverage survey. The sampling was done randomly.

Initially the research designer proposed a sample of 412 HHs to be interviewed based on a total population of 17,365 HHs in the targeted villages proposed for the assessment, However this was revised to the minimum possible interviews of 274 household. The research designer decreased the sample size (from 412 to 274) considering the limited time and budget for conducting the survey. Given that a nutrition report from UNICEF had been available at the time of WV survey this allowed the lowering of the sample size to the minimum possible range. In consultation with the project lead, the reduction in sampling to the lower range included strictly linking with households with pregnant and lactating women and children of the given ages in them. The initial collection of data for all 274 HHs targeted only one child from each household and missing the rest, even if in the same age bracket. During computing the results for certain variables directly related to children's nutrition status, staff felt the need for revisiting and recollection of data for the HHs. The re-collection mainly helped in gathering missing MUAC data and related aspects for all the sample survey aged children where there was more than one child in the age bracket in the household. Staff made the analysis in the report using pivot tables in Excel.

Similarly, the data was cleaned with removing HHs with all children with implausible values of MUAC or removing one or more children with incorrect MUAC from the HHs. The sector lead determined removal of HHs or the children from within HHs using the standards available from WHO.

In this regard, the number of HHs in the database reduced. The report shares analysis with data cleaned in two ways. In the body of the report at each analysis the analyzers removed outlying figures and conducted analysis for the measurement based on the cleaned sample size. This is why the sample size on number of children varies from one analysis to the next in the body of the report. The most problematic data measurement was age (due to lax birth registration and non-celebration of birthdays/ anniversaries) which therefore had a smaller sample size of number of children for any analysis involving that measurement. For ensuring this approach had not jeopardized the analysis the team recreated the data set and analysis tables taking the approach to delete the entire HH data where there was any single outlying data. This reduced the data set to 235 HHs left with 606 children (from 762 in 274 HHs).The tables representing this approach for data cleaning are annexed to the report.

It is important to mentioned that the reduction in sample size with cleaning data using either approach was made carefully without having the results been adversely affected. This can be confirmed in the comparison of the two

sets of analysis tables. Efforts have been put to confirm validity of the data and results after removal / reduction of the sample size, for certain technical as well as social parameters used in the survey.

It has been observed that pregnant and lactating women and children less than five are more prone to malnutrition and its impact and therefore the survey remained focused on malnutrition susceptibility in women of reproductive age and in children of the age group 6 to 59 months. . Survey team visited each household. Each house hold in the sample were included both single headed house hold in single family and combine family structure. Children under 06 months were part of the survey as their mothers were interviewed for initiation of breast feeding, exclusive and complementary feeding patterns and for practices of top up milk as well as for illness in this age group. However staff did not collect weight for height, height for age in this age group is treated under the infant and young child feeding UNICEF standards and appropriate measures.

2.1 Overall Objective of the Research:

The overall objective of this research was to establish the extent and severity of acute and chronic malnutrition in the flood and non-flood affected areas of Sukkar and Khairpur, and to gain and understanding of the underlying causes and contributing factors.

Specific objectives include the following:

1. To validate the prevalence of acute malnutrition in children aged 6-59 months and Pregnant and lactating mothers, To determine the prevalence of chronic malnutrition rates in the two districts
2. To identify the immediate causes of malnutrition

3. SURVEY RESULTS:

3.1 Extent of Malnutrition In children the three most commonly used anthropometric indices to assess their growth status are weight-for-height, height-for-age and weight-for-age. These anthropometric indices can be interpreted as follows:

3.1.1Stunting:

Low height-for-age: Stunted growth reflects a process of failure to reach linear growth potential as a result of suboptimal health and/or nutritional conditions. On a population basis, high levels of stunting are associated with poor socioeconomic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices. The worldwide variation of the prevalence of low height-for-age is considerable, ranging from 5% to 65% among the less developed countries. In many such settings, prevalence starts to rise at the age of about three months; the process of stunting slows down at around three years of age, after which mean heights run parallel to the reference. Therefore, the age of the child modifies the interpretation of the findings: for children in the age group below 2-3 years, low height-for-age probably reflects a continuing process of "failing to grow" or "stunting"; for older children, it reflects a state of "having failed to grow" or "being stunted". Thus, to develop the extent of chronic malnutrition 758 **children in a randomly selected survey sample of 274** households were measured for height and age. The results were calculated through height for age z-score. [1]

Out of 758 children's data, data analysts discounted that of 138 children due to age errors or outlier figures. Thus, out of the total remaining 620 children of the age group 06-59 months measured for height and age, 429 children were under -3 Z- Score which is 69% of the 620 children.

[1] WHO growth monitoring standards

TABLE 3.1: PREVALENCE OF STUNTING BASED ON HEIGHT-FOR-AGE Z-SCORES AND BY SEX (N=395)

Tab 3.1 Gender Base Prevalence of Stunting by Height- for -Age Z score (n=395)

	All n = 620	**Boys** n **=** 332	**Girls** n **=** 288
>-2Z Score	**(111)18%**	**(50)15%**	**(61) 21%**
Prevalence of stunting (<-2 z-score)	(509) 82%	(282) 85%	(227) 79%
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(80) 13%	(38) 11%	(42) 15%
Prevalence of severe stunting (<-3 z-score)	(429) 69%	(244) 73%	(185) 64%

Staff considered that caregivers often gave rounded and estimated ages based on memory and linkage to seasons and or moon and as such may be quite inaccurate in months and in some cases may even confuse their children's birth order and give years of difference especially if data was given by regularly absent fathers or carers other than the mother This kind of estimation can lead to errors in age with subsequent anomalies between height and age. This would however only explain an increased -3 Z score if carers overestimated age more often than they underestimated. The trained staff took the height measurements using local calendars of events.

WV also looked into the findings with height for age in World Vision areas for nutrition intervention, from the pool of SAM children's data, registered in each OTP/SFP site. Of the total 459 children with SAM in the centres, 298 (65%) were chronically malnourished. The HFA calculation in these children is given below:

Tab 3.2. CMAM Coverage in WV interventions sites

Height for Age among SAM children in WVCMAM Intervention Sites Sukhur/Khairpur			
SAM children registered	**All** n = 459/ 100%	**Boys** n **= 181 39.4%**	**Girls** n **= 278 60.6%**
>-2 z-score	**104 (22%)**	**39 (22%)**	**65 (23%)**
Prevalence of stunting (-2 z-score)	355 (77%)	142 (31%)	213(77%)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	57 (12%)	15 (8%)	42 (15%)
Prevalence of severe stunting (<-3 z-score)	298/65% of SAM children	127/ 70% of SAM Boys	171/61.5% of SAM girls

The same information appears below with a little more detail from the clinics.

Tab 3.3. SAM among Children registered at WV intervention sites- Sukkur & Khairpur

Height for Age among SAM children in WV Nutrition Sites Sukkar/Khairpur including breakdown of 0, >0< +2 SD, >+2<+3SD						
Range of Z Scoring	<-3	<-2	0	<2	<3	Total
Male Children (6-59	127	15	33	4	2	181

months)						
Female Children (6-59 months)	171	42	53	6	6	278
total	298 (65%)	57 (12%)	86 (19%)	10 (2%)	8 (2%)	459

For accurately measuring stunting in children into the future considerable efforts should be made to ensure children's births are registered within a week and one month of delivery. This process currently involves the issuance of a birth certificate by a health facility the taking of the birth certificate to the UC administration by a parent with NIC and processing of birth registration with the town council. The certificate issued by the UC allows the parent to further travel to a NADRA registration office where the child's birth is registered on the computerized data base and a B form is issued. Future surveys where birth registration has rigorously and quickly occurred can use B forms and linkage to the Nadra database to accurately gauge stunting. This should be a clear recommendation for any partner working on nutrition into the future.

3.1.2 Wasting:

Low weight-for-height: Wasting or thinness indicates in most cases a recent and severe process of weight loss, which is often associated with acute starvation and/or severe disease. However, wasting may also be the result of a chronic unfavorable condition. Provided there is no severe food shortage, the prevalence of wasting is usually below 5%, even in poor countries. The Indian subcontinent, where higher prevalence are found, is an important exception. A prevalence exceeding 5% is alarming given a parallel increase in mortality that soon becomes apparent (2). On the severity index, prevalence between 10-14% are regarded as serious, and above or equal 15% as critical. Typically, the prevalence of low weight-for-height shows a peak in the second year of life.[2]

Out of 712 children aged 06-59 months measured weight for height, 180 (25%) found scored under healthy growth by three standard deviations (-3 SD) which is severe malnutrition and 15% above what is considered to be critical levels, and 111 (16%) were under healthy growth by two standard deviations (-2SD) but above -3SD. Data analysts discarded 27 entries children entries due to enumeration errors.

Tab 3.4. Gender Wise Prevalence of Wasting (Weight-for-height- z-scores)

	All n = 712	**Boys n = 362**	**Girls n = 350**
Prevalence of Global acute malnutrition (<-2 z-score)	**(291) 41%**	**(137) 38%**	**(154) 44%**
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score)	**(111) 16%**	**(45) 12%**	**(66) 19%**
Prevalence of severe acute malnutrition (<-3 z-score)	**(180) 25%**	**(92) 25%**	**(88) 25%**

[2] WHO growth monitoring standards

3.1.3.Acute Malnutrition: (MUAC)

Out of the 762 children in the expanded research, who were measured for WFH and HFA, also screened through MUAC, staff recorded 69 with SAM and 122 with MAM which represents 9% SAM and 16 % MAM respectively.

Tab 3.5 Acute Malnutrition rates through MUAC (n=762)

	All n = 762	**Boys** n **= 386**	**Girls** n **= 368**
Global Acute Malnutrition (<125 mm)	(191) 25%	(92) 24%	(99) 27%
Moderate Acute Malnutrition (≥115 mm and <125 mm)	(122) 16%	(62) 16%	(60) 16%
Severe Acute Malnutrition (<115 mm)	(69) 9%	(30) 8%	(39) 11%

3.2 Household socioeconomic Indicators

Malnutrition is closely linked with socio economic status of the family or a household. Thus to link the high malnutrition rates with their socioeconomic status, 274 house hold were randomly selected from among a household population of 23, 764.

The Socioeconomic indicators explored in each household included an assessment of the type of house, material used for its construction its ownership,

3.2.1 Ownership of the house:

Ownership of the houses is a direct measure of economic status of that house hold. In the selected sample, house ownership was further justified with number of rooms in each house hold. The survey finding was as under:

0ut of 274 HH 218 have asked about number of rooms in their house, 56 are missing.

Tab 3.6 Living Space

	Number and % homes with X rooms			
# Rooms	Owned	Rented	Living without rent	Total
1 Room	58 (83%)	2 (3%)	10 (14%)	70 (100%)
2 Rooms	67 (89%)	5 (7%)	3 (4%)	75 (100%)
3 Rooms	33 (87%)	4 (11%)	1 (3%)	38 (100%)
4 Rooms	17 (89%)	1 (5%)	1 (5%)	19 (100%)
5 and more rooms	15 (94%)	0 (0%)	1 (6%)	16 (100%)
Total	190 (87%)	12 (6%)	16 (7%)	218 (100%)

When staff asked the respondents about their residential status, close to a third of the HHs were in single rooms. Of these HHs a third owned it and two thirds were rent free but in a tenant landlord relationship with regard to house but with single room. Only 8% of the respondents had 5 rooms or more. Respondents who only had one room but they were living without rent were (10) 14%. They were living in houses made by the landlord and for whom they were doing farming. . There were only 13% OF respondents living in rented or loaned premises. Large families living in one room is indicative of poverty. Using one room for living purposes can lead to the easy spread of many communicable diseases such as TB, respiratory infections and skin illnesses.

3.2.2. Number of rooms used for sleeping:

In Northern Sindh, it has been noticed that there are many rooms apparently available but these rooms with three walls, with open windows, without doors etc, and they do not maintain privacy. Thus, to get an exact idea of number of rooms with properly built for sleeping questions were drafted as number of rooms used for sleeping. The survey findings for this question were:

Tab 3.7

218 HHs	1room	2 rooms	3 rooms	4 rooms	5 rooms
Number of rooms in HH	**33%**	**34%**	**17%**	**9%**	**7%**

Again, this indicates that a great majority are prone to communicable diseases.

3.2.3 Building material use for the house:

Then for type of house and its building material, the questionnaire asked the type of material used for walls, and roof and floor of the building. For analysis of the questions:

- walls built with bricks, cement and lime were termed as paved,
- un-plastered walls of bricks and walls built with durable wooden or wooden sheets were termed semi paved.
- Walls made of ordinary thin plywood, thatch and sticks, galvanized tin sheets, other materials such as cloth sheets, disposed off tent materials etc. were classified as unpaved walls.

Similarly, staff collected details for type of material used to build roofs and analyzed responses received as:

- Roof made of thatch and galvanized tin sheets were considered unpaved
- roof sheets, concrete and wood roofs were called semi paved and
- concrete sheet roofs, RCC and other such as wood crafted, iron beams used etc. were called paved roofs.

For floors, this classification was based on:

- cement lime, tiles and marbles as paved, wood and concrete as semi paved and
- sand/mud or un leveled filling with sand as unpaved houses.

The questionnaire was not designed for land ownership of the house, however during the interviews; respondents revealed that some households had the piece of land for residence, with no or nil property for farming. There were also respondents with no land who constructed a house on the property of a landlord with whom they were paid farmers.

Houses type details were as under:

Tab 3.8. Type of material use for house construction

Material used for building the house			
	Paved	Semi Paved	Unpaved
Wall of the house	**20%**	**39%**	**41%**
Roof of the house	**10%**	**59%**	**31%**
Floor of the house	**13%**	**11%**	**76%**

The data reflects that a big majority of the respondents are in unpaved houses. 76% respondents have rooms with unpaved floor which is exposing them to dust related illnesses such as skin diseases, worms and respiratory infections.

3.3 Type of fuel used for cooking by each house hold:

The survey questionnaire also included for type of fuel these communities used for cooking.

Tab 3.3 Type of Feul used for cooking

	Fire wood	Gas/ Gas Cylinders 2 rooms	Kerosene oil	Animal dung	Other Fuel
Type of fuel used for cooking	**36%**	**3%**	**36%**	**2%**	**24%**

The population under study was assessed for fuel they routinely used at homes for cooking and other related purposes. The fuel source was mostly fire wood and kerosene oil. Very small proportion of the sample was using gas cylinders and animal dung. There were some other resources such as tyres, paper waste, dry dates leaves etc which was making 24% of the remaining fuel source. Thus for population using 36% of the fuel source as Kerosene oil had to purchase it from the market which is another blow on their house hold income. Burning tyres and plastic waste also introduces damaging smoke particles and toxins that may affect long and short term health especially to those cooking or if used within a non-ventilated confined space.

3.4 Economic Status

3.4.1 Household income:

The team asked each house hold for the source of income and level of income they were generating. The income source and level varied and were concluded on averages. Thus, average monthly income per house hold was found to be around 9000 Pk Rs/month. The main sources of income generation was labour on daily wedges, small business such selling children toys, collecting dates and selling them in market, cotton and wheat harvesting as laborers etc. In some of the households visited, the respondents told that that they are getting rupees 2000/- for wheat harvesting per hundreds of acre, rupees 300/- per 40 kgs of cotton picking, and for dates collection during dates season they were getting more than 20,000 rupees. This way, they were making

some money over the year but when we correlated this income with each household size then this money is enough to meet the average daily survival household needs without making any savings for priorities such as health care and supporting regular education access.

3.4.2. Household Assets

The team collected Information regarding assets from the sample households. The questionnaire design had an assets list ranging from the availability of cattles to computers. For the purpose of analysis, details of assets in each house hold was difficult due to wide range of asset list, its type and their un equal distribution among the communities. Thus, to get a closer picture, assets details were generalized by taking average of each assets communities having at the time of survey

Fig 3.4.1 Household Assets

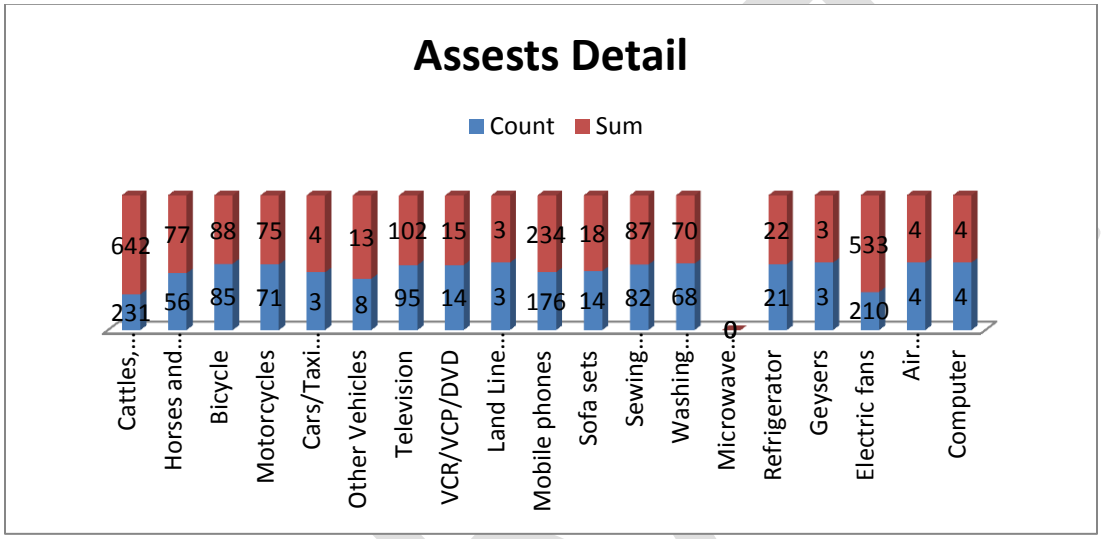


Fig .3.4.1 Household Assests

The findings were as under:

Cattles such cow, buffalos and sheep are major livestock in these communities followed by electric fans and mobile phones. Only four computers in a sample population of 274 households is a strong indication of both poverty and illiteracy. It is important to note that refrigeration is not common even given the high summer heat and this may effect left over food quality/ hygiene even if protected from flies. Since, these people are deficient in common need items so things of luxury are a dream for them. The assets details were asked to indicate their level of poverty and its impact on their social, physical and psychological life. The above graph also indicates the assets distribution was unequal. For example in 231 houses, there were 642 cattle but in the remaining 43 houses there was not a single cow. Similarly, details for other assets with reference to the household are mentioned above.

3.5. Water, Sanitation & Hygiene Practices

Availability of clean drinking water, sanitation and good hygiene practices have direct impact on the health of the people. Positive practices and safe access to the three of them contribute to good health and nutrition.

3.5.1 Source of drinking water for households:

When the respondents were asked for their source of drinking water, **77%** of them mentioned access to bore water in the courtyard of their house, and below 10% of the respondents were using other sources such as public/piped water, tube well protected/unprotected dug wells, natural water reservoirs, irrigational channels etc. The bore water was considered safe from physical contamination however, the same water was not tested for its chemical quality. Given that flood levels may have affected the depth at which safe uncontaminated water can be obtained the safety of bore water needs to be tested as well as for chemical contaminants such as fluoride and arsenic.

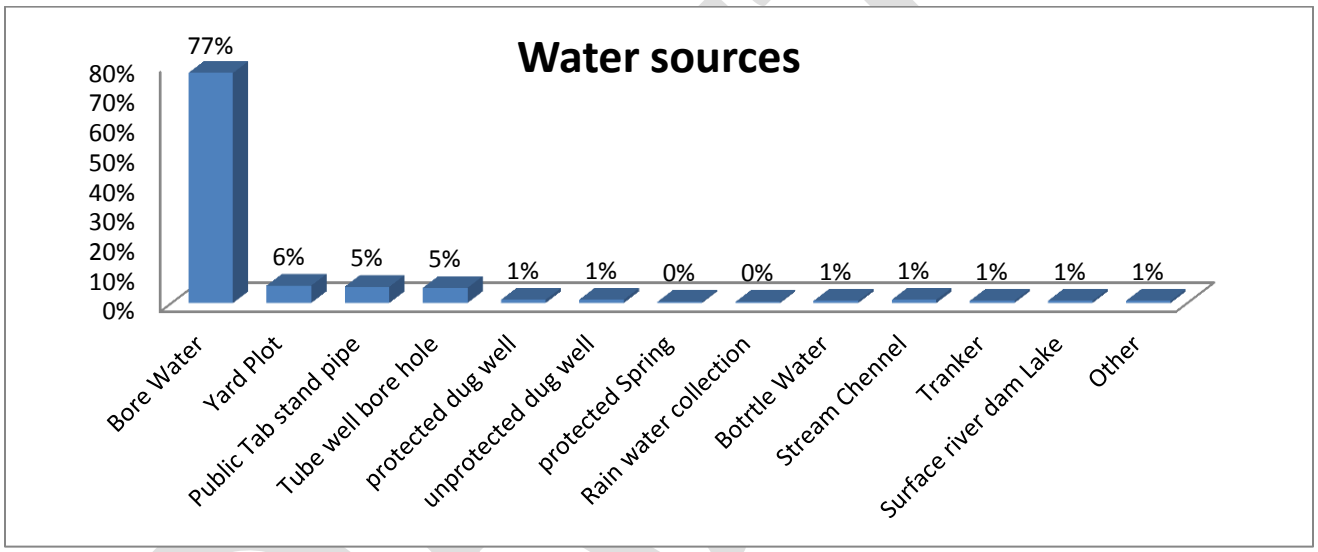


Fig 3.5.1 Sources of Drinking Water

Bore water is the source of drinking water for most of the respondents. Primary health care data also presents a case of higher rates of ARI as compared to diarrhea however further analysis needs to be done to ascertain whether rates of diarrhea are lower in comparison to population size and other areas of Pakistan.

3.5.2 Measures to make drinking water safe:

Though, most of the respondent declared bore water suitable for drinking purposes but community was asked for their opinion on treatment of water.

Tab 3.5.1 Frequency of Water Treatment

	Always	often	sometimes	never
Treatment of water for making it safe to drink	33%	1%	12%	54%

Around 33% of respondents were treating water via boiling, adding chlorine and by keeping it in sun but the majority of them never tried any method for making water safer for drinking purposes.

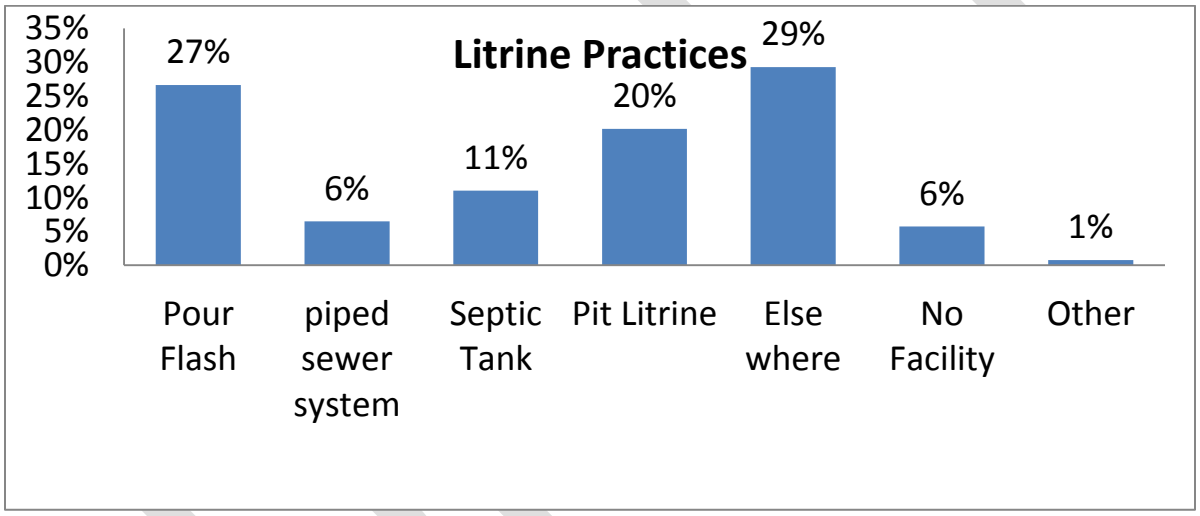
3.5.3. Water for cooking and other purposes:

The team asked the respondents about the water they used for cooking and other household purposes. The survey results showed that nearly the same numbers as above are using the same water source for cooking and other household purposes. Though, most of these sources are within the compound of houses, on average it takes 2-13 minutes for women to fetch water. Women are solely responsible for fetching water and for storing it. The survey findings were as under:

Fig 3.5.2 Sources of HH water3.5.4 Hygiene Practices:

A proper functioning toilet system is a good socioeconomic indicator on one hand and can be an indicator of better hygiene practices. In this connection, when respondents were asked which toilet facility they are using, the responses were as under:

Fig 3.5.3 Types of latrines



Only 27% have a flush toilet system. Twenty- nine percent of respondents defecate outside in the fields. This indicates that the community is either not affording to build latrines or considering a latrine system a low priority.

It is important to note the 61 % of the respondents were using shared toilet systems. One facility for two to three families living together:

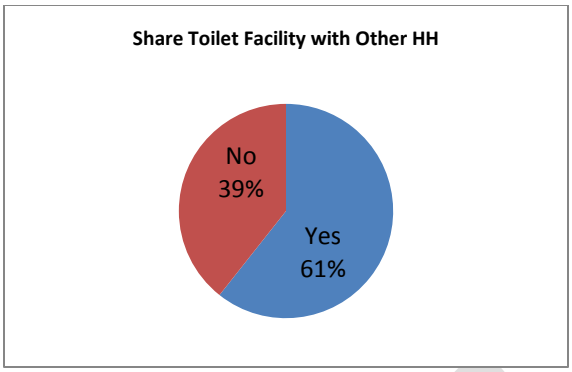


Fig 3.5.4 Shared Toilets

Inquiries on proper hygiene practices were also included hand washing practices. The survey results are as under:

Tab 3.5.2 Hand Washing Practices

Hand Washing	Yes	No	Missing answer
Wash hands with water after using toilet	**82%**	**4%**	**14%**
Wash hands with water before meals	**76%**	**5%**	**19%**
Wash hands with water and soap	**57%**	**12%**	**31%**

More than 80% of the total respondents reported washing hands with soap. During the visit, it was noticed that they kept soap in a pot for routine use purposes. The same soap they were using for handing washing, washings clothes and other house hold utensils. 76% of total respondents wash hands before meals and 57% wash hands with soap. The question may have been leading and this should be revalidated before drawing any conclusions.**3.6 Food Intake Patterns**

3.6.1Food intake frequency in Women of Reproductive Age:

In order to justify a correlation between poor dietary intake and malnutrition, total 274 women of reproductive age that is between 15-45 years old were interviewed for their daily food consumption patterns and frequency. Pregnant and lactating women were also part of this interview. Frequency of routine meals from morning till late night was asked from these women. Out of total 274 women targeted for the interview, data was incomplete for 18 women which is considered missing in the report. Although comparatively a bigger number of respondents falls under three times (72 women, 26%) and four times (76 women, 28%) meals frequency category followed by a small group having food five times (28 women, 10%) a day. 8% of the respondents are takings meals less than two times and less than 10% are taking meals more than six times a day. This frequency in food intake was further compared with type of food they were consuming on a daily basis.

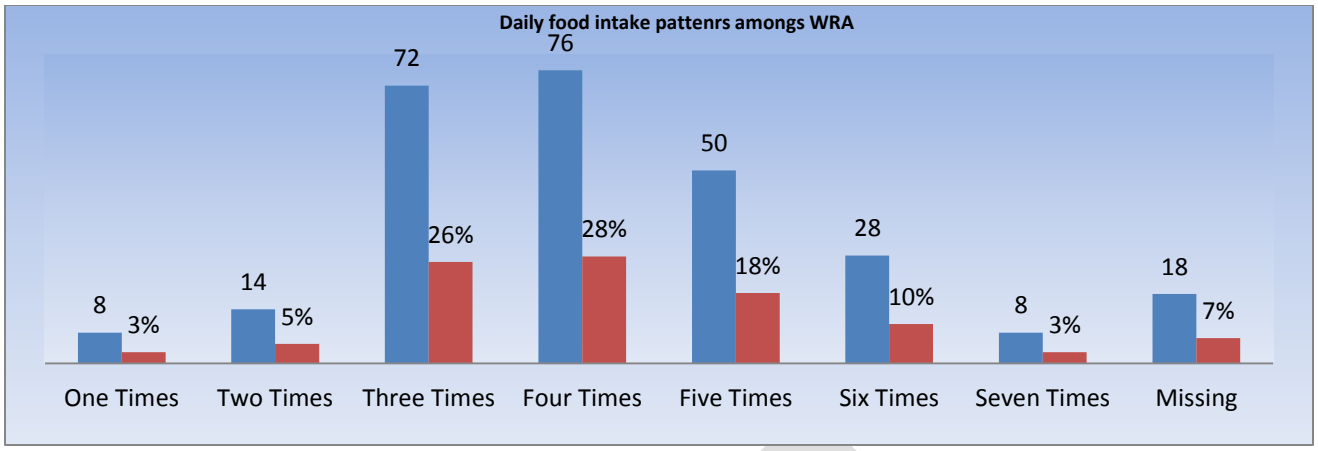


Fig 3.6.1 Daily Food Intake

3.6.2 Daily food composition:

Whether he food these reproductive age women are taking during a day is nutritious or not is another area of concern. To investigate this, the questionnaire designed included the name of common food people take in these areas. From 274 women interviewed for this question, it was revealed that the majority of their routine food is comprised of tea, tea with bakery, tea with roti, rice, vegetables and rice and milk. Yes, some also mentioned rice with pulses in their routine food. Food types and timings of intake were defined here as before breakfast, breakfast, brunch or before lunch, lunch, super or before dinner and dinner. The survey results were:

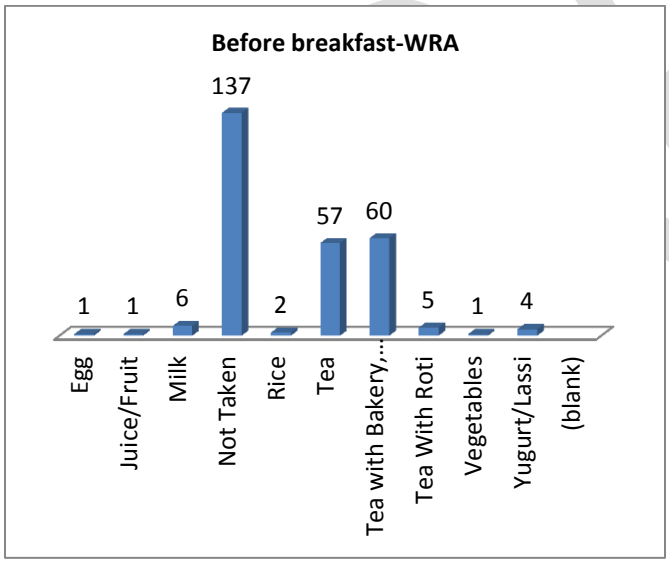


Fig 3.6.2 a

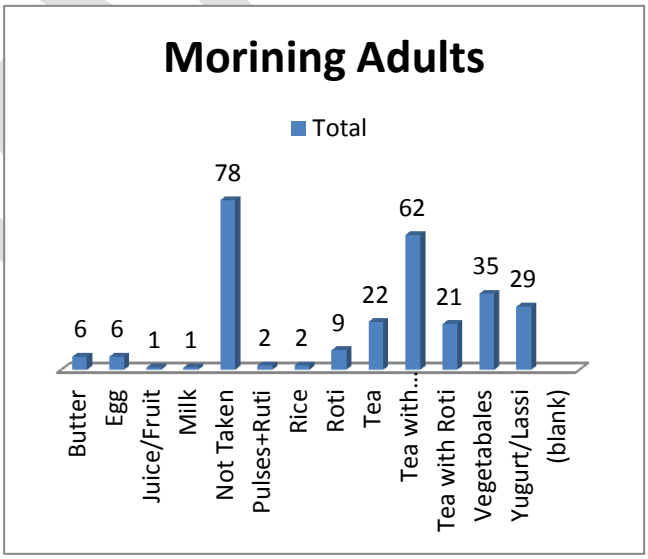
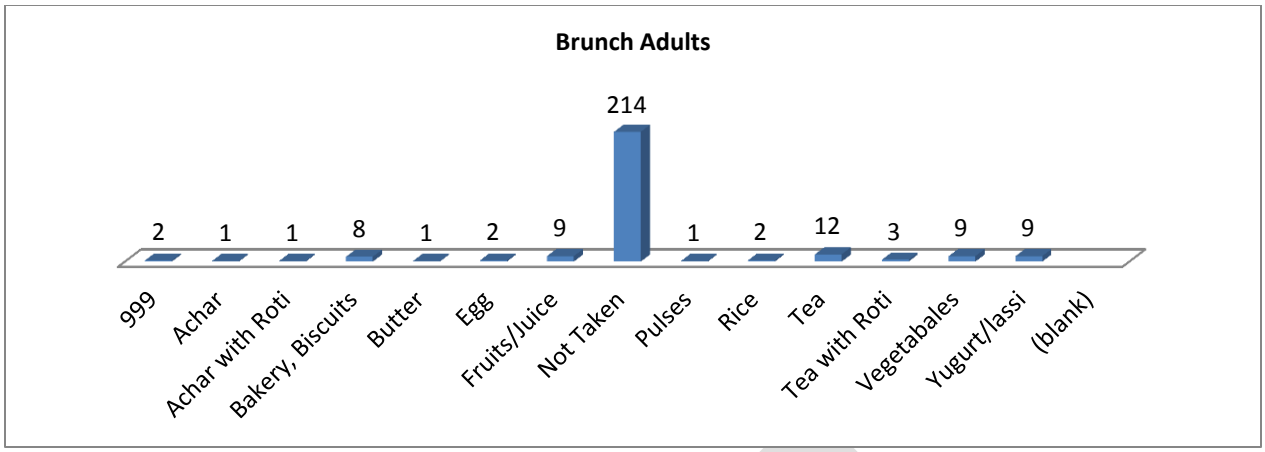


Fig 3.6.2 b

137 women of reproductive age had never taken anything before breakfast. Some women had tea with bakery or only tea at this time. In breakfast, out of the total respondents interviewed, 78 take nothing in breakfast whereas, the rest take tea with bread, tea with bakery, vegetable, rice and lassi is less nutritious and deficient in proteins.

Fig 3.6.2 c



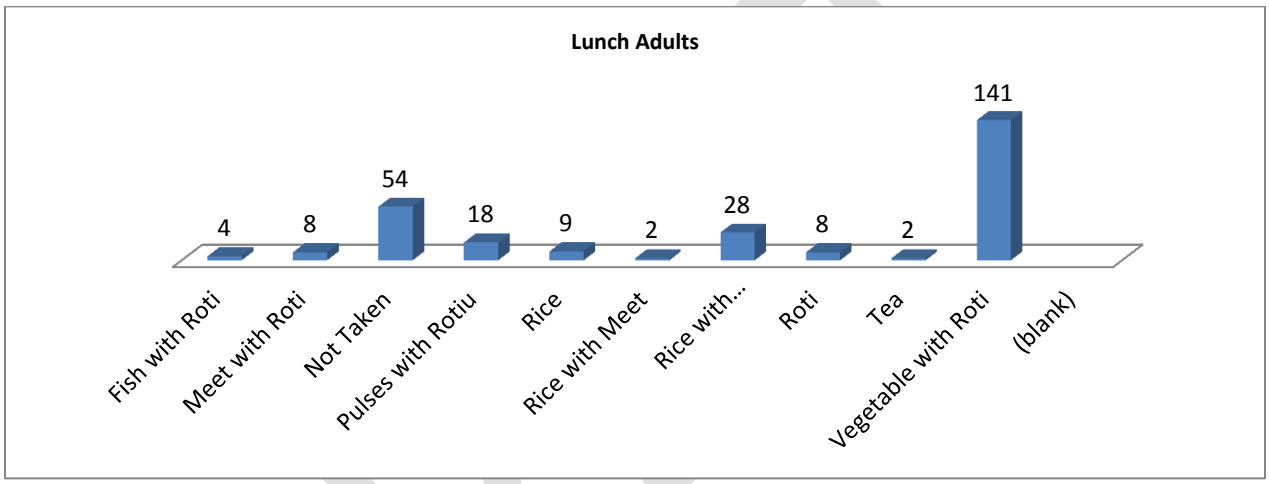


Fig 3.6.2 d

When questions were asked from women of reproductive age group for any habit of taken food before lunch, 214 said they don't take brunch. Likewise breakfast, food taken before lunch and during lunch was comprised mainly of pulses and vegetables. More than 60 % of the respondents were taking pulses and vegetables. Though pulses are rich in proteins they contain fewer proteins and less iron compared to meat which contains multiple proteins and red meat is a rich source of iron.

Fig 3.6.2 e Type of Food in the Afternoon

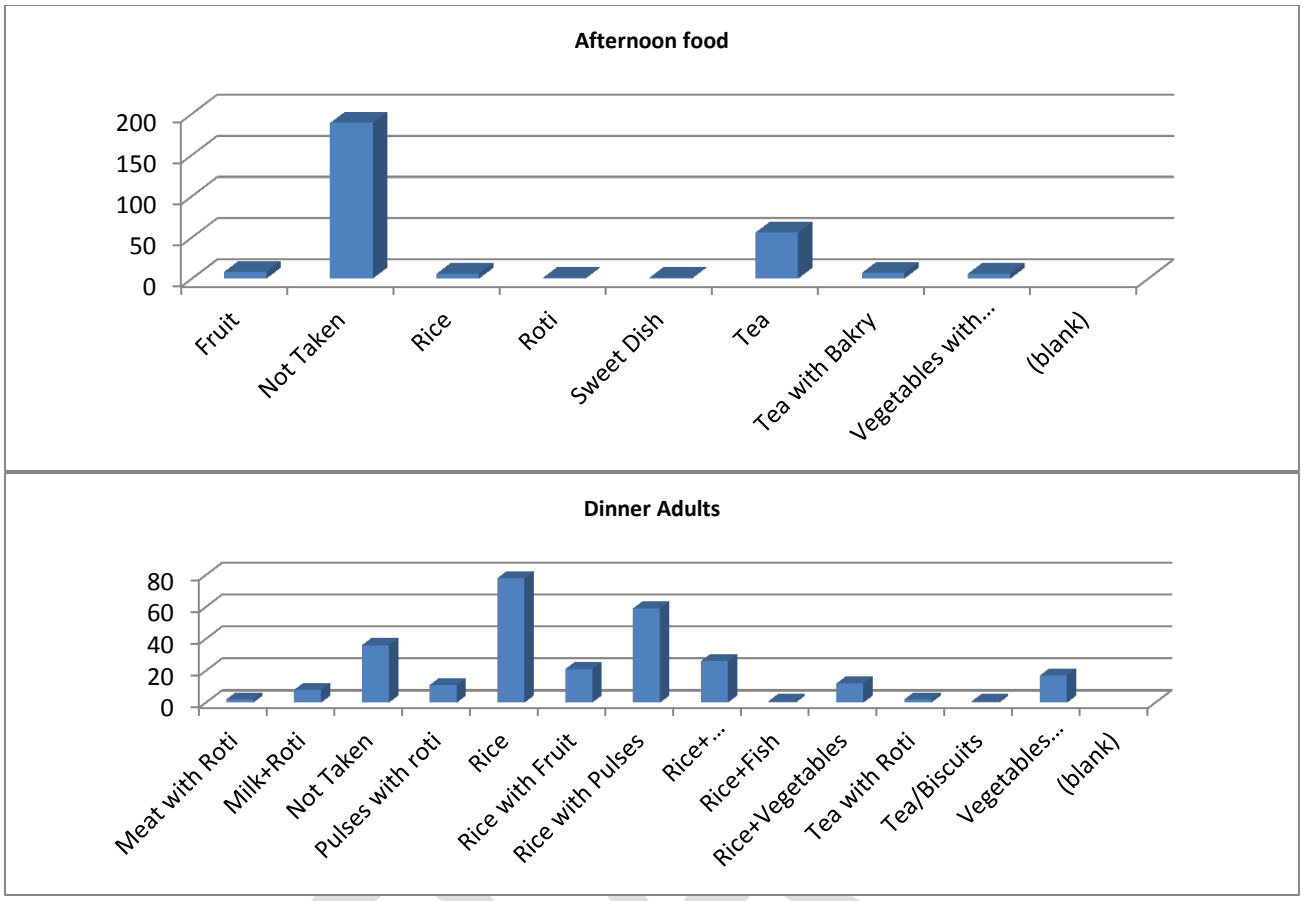


Fig 3.6.2 f Type of Food-Dinner

In the afternoon) , the only food is tea however, the majority are not taking anything. At dinner, again rice and pulses is the major food and as mentioned earlier this food is rich in carbohydrates and proteins. Low and nutritionally inadequate diet appears to be a contributing reason for wasting in the majority of the population.

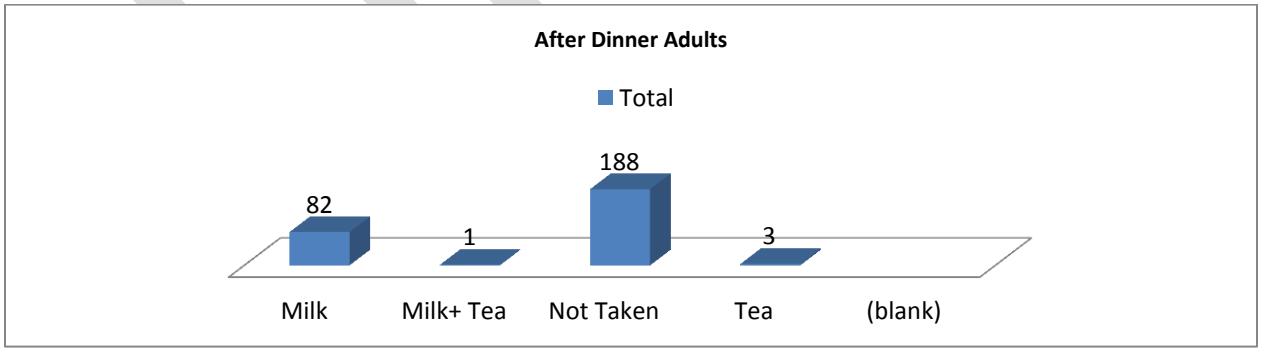


Fig 3.6.2 g Type of Food after Dinner

At supper, out of the total 274 women of reproductive age, only 82 women were taking milk and the rest nothing. Women of reproductive age need highly nutritious food, food rich in proteins and carbohydrates. Their food requirement increases further during pregnancy and during lactation.

The overall daily food intake patterns are such that, some women are taking nothing before breakfast but they do breakfast and some prefer to take lunch and nothing as brunch, nothing in super and taking food in dinner but there are women who take all the meals of the day and there are women who prefer very few meals .

3.6.3 Food intake frequency in children of age group 06-59 months

The same group of 274 women was asked about the diet they are presenting to their children at home. Focus of study for children diet was age group between 06-59 months. The frequency of meals taken or given to these children by their mothers was different from their own diet. This response was highlighting the cultural approach of men first and children next for meals with women in the last queue.

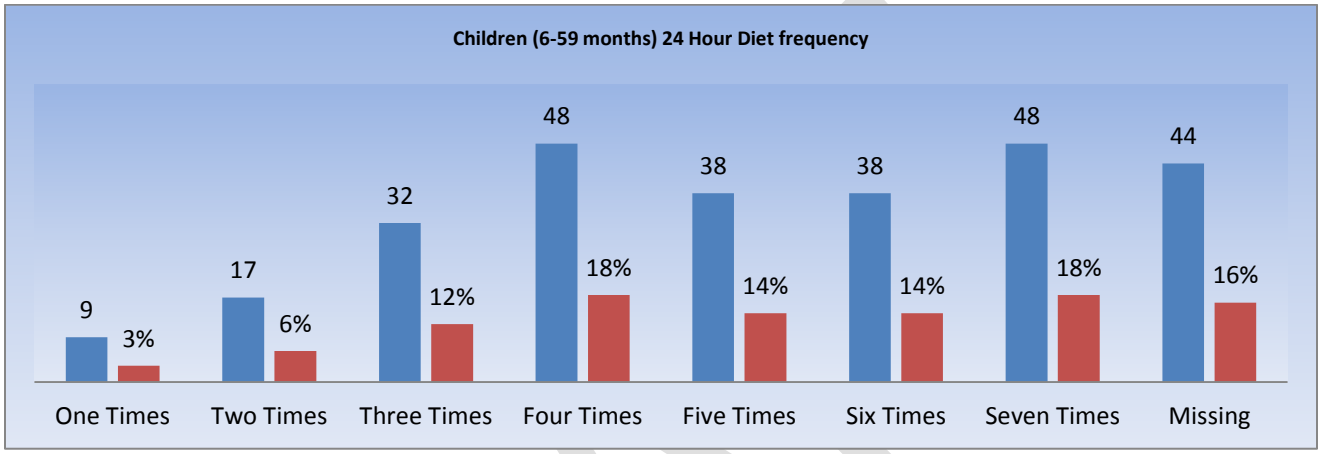
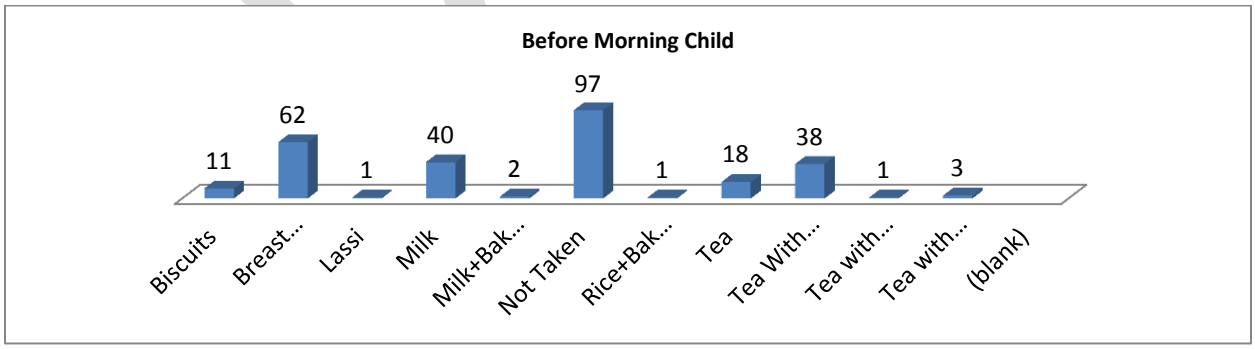


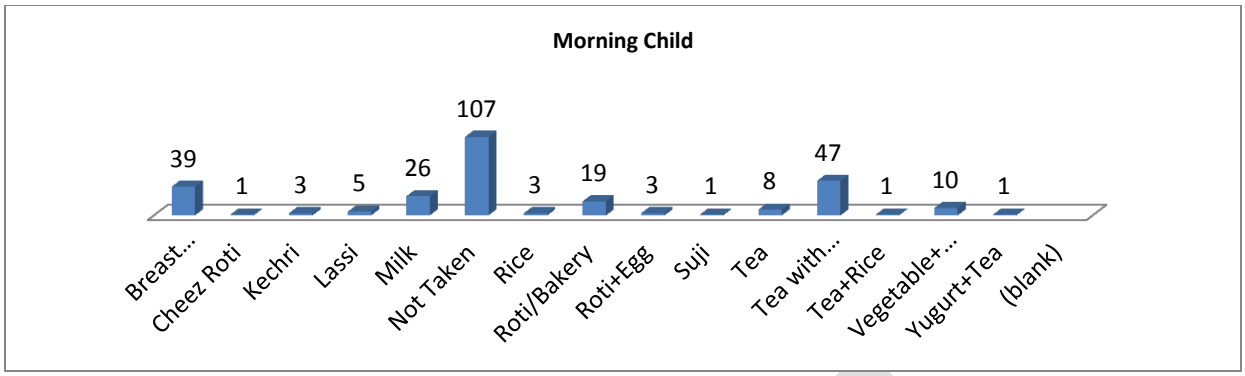
Fig 3.6.3 Frequency of Food Intake

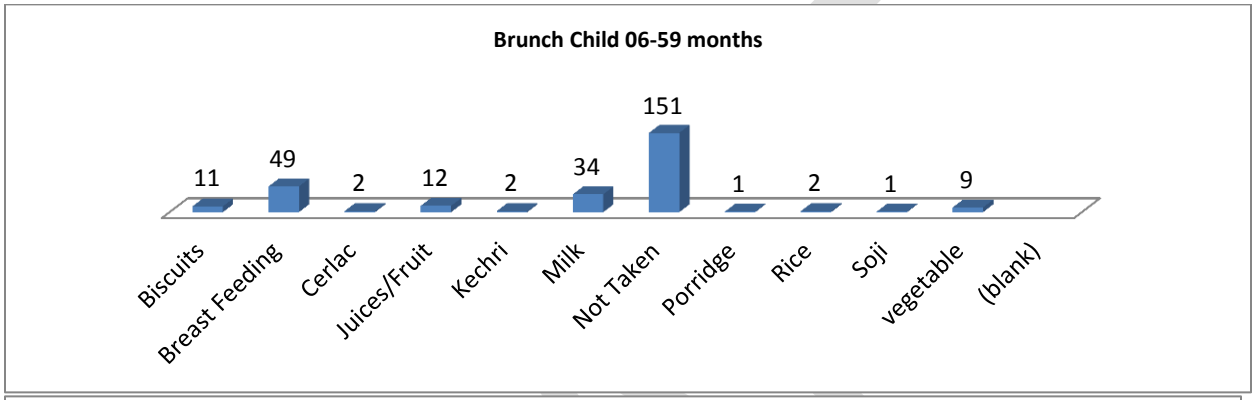
3.6.3, a Children daily diet composition:

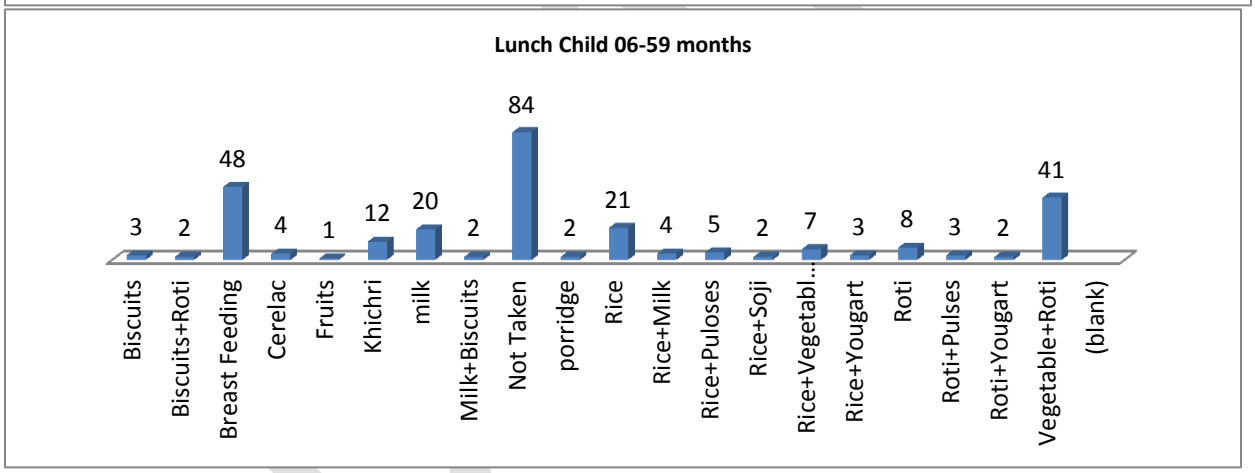
Contrary to the dietary composition of women of reproductive age, the major diet for children was breast milk followed by fresh milk available at home. Tea, tea and bread (roti), rice, egg plus bread making a small portion of these children diet.

Fig 3.6.3.2 a, b, c& d



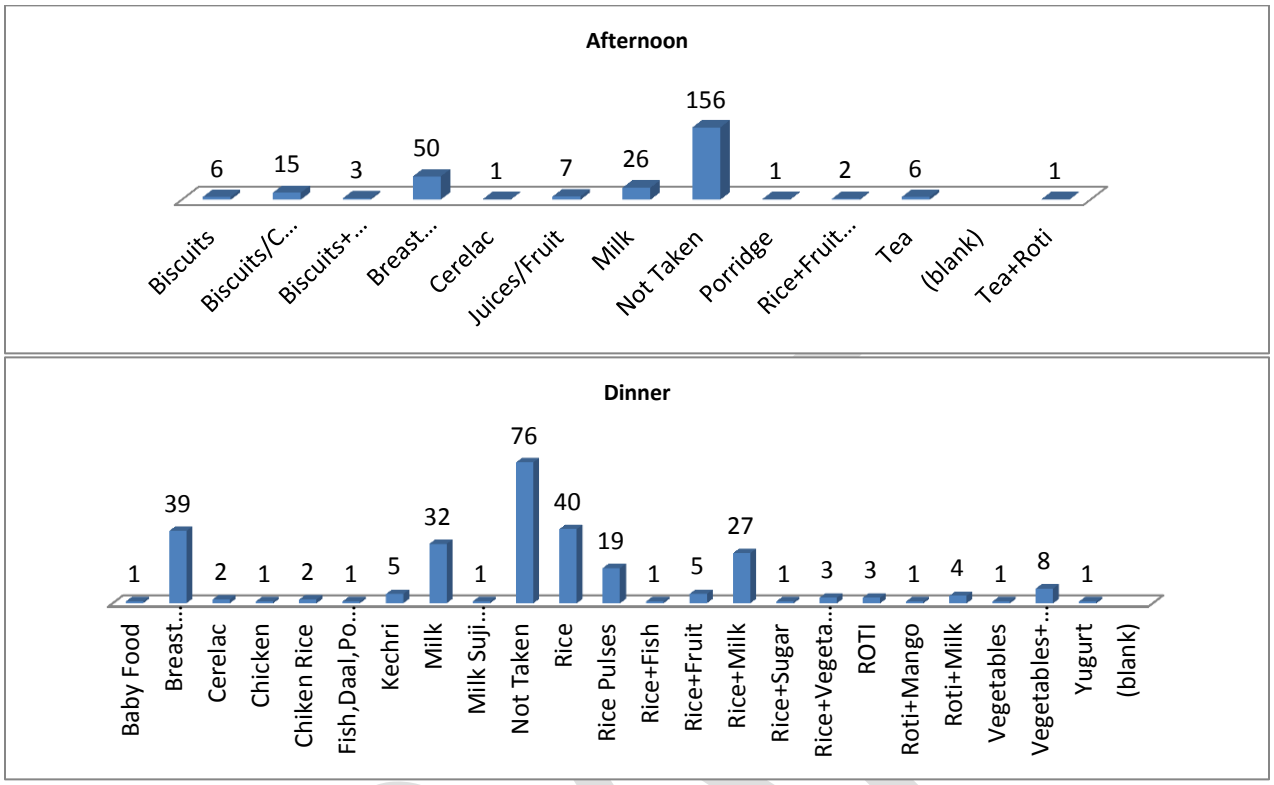






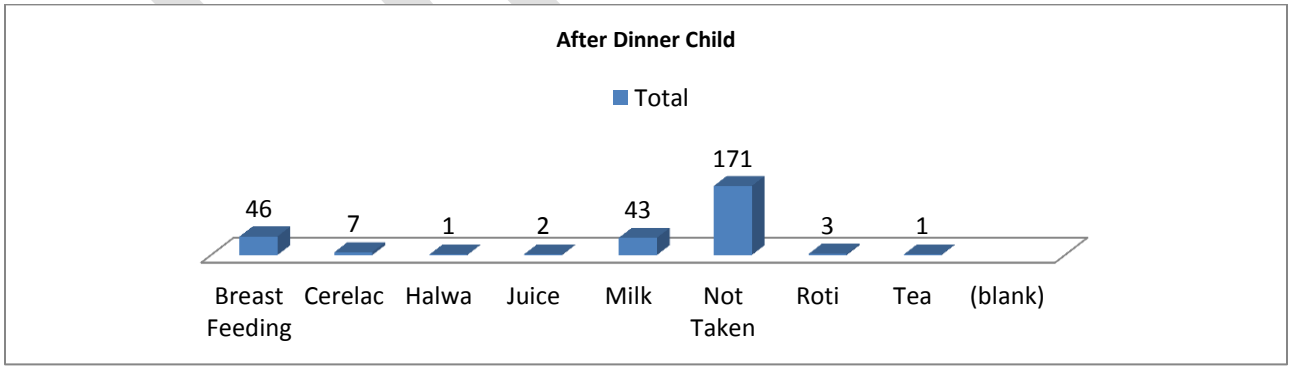
The majority of the children who are eating in meals are breastfed but it is important to mention here that breast feeding duration in the community is not more than two years. This also indicates that the majority of the older children in the community are not taking adequate diet. The breakfast of only around 50 children is comprised of breast milk, other milk like formula milk, cow milk and a small number of children (21) are taking rice only. This indicates that their food is largely deficient in proteins and carbohydrates and vitamins and minerals other than those found in the breast milk

Fig 3.6.3.2 e & f



Most of the children under two years are breastfed however, there are children who get some other food such as biscuits, top up milk, and a variety of other less nutritious food. less nutritiouss food comprised mainly of cookies, rice and biscuits,. Many are taking less food or taking less nutritious food. The Same is the case at dinner where most of the children are on either breast milk, cow milk, or rice and vegetables. Some of the respondents also mentioned rice with churned milk, bread with mangoes as a portion of their dinner

Fig 3.6.3.2 g



After dinner breast milk was the only type of food for 46 children and milk (cow milk/formula milk) for 43 children and this indicated that the rest were mostly taking nothing.

It is recommended that children of a young age should eat more frequently. It is therefore quite alarming to see numbers of children i.e. 21% of those 274 surveyed eating only 1-3 times a day. Contrary to the dietary

composition of women of reproductive age, the major diet for children was breast milk 31%, followed by fresh milk 21% available at home. Tea 3%, tea and bakery 8%, rice 6%, vegetable and roti 6& is also making a small portion of these children's diet.

When checked against all meals there were around 50% children aged 6-59 months who only had meals consisting of fresh milk and tea, tea with bakery, rice, bread, rice, bakery, which is of limited nutritional value on its own. Similarly although exclusive breastfeeding ends at 6 months there were 52% children in this age group surviving mostly on milk or breast milk, which suggests protracted exclusive breastfeeding which does not meet the needs of children and places a strain on mothers. Though it is understandable if there is a scarcity of food and or breast feeding is being understood to provide contraceptive powers if exclusive. Exclusive breast is a natural contraception but only if it is exclusive. In the communities we interviewed for breastfeeding, it was revealed that breastfeeding patterns are not appropriate and not regular thus exposing lactating mothers for further pregnancies.

3.7 Breast feeding practices: Breastmilk is the natural first food for babies, provides all the energy and nutrients that the infant needs for the first months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life. Breast milk promotes sensory and cognitive development, and protects the infant against infectious and chronic diseases.

Mothers were asked if they ever breast fed their children, 96% said yes and 4% said no and the reasons for not ever breastfeeding their children were mentioned as mother was sick, or the child was sick. There were some cultural reasons and some mothers didn't mention why they didn't breastfeed.

3.7.a Colostrum or thick milk given at birth:

Colostrum is the first milk which has tremendous nutritional value and enhancing immunity against infections in children. But it also is helpful in speeding up uterine contractions after delivery and is thus a natural bleeding control mechanism. This initial contact also helps the psychological satisfaction of the mother and bonding between mother and child.

When mothers were interviewed regarding colostrum feeding at birth, 77% mothers said yes, 12% said no and the remaining 11% were unaware of colostrum. Of the women, who did not breast fed their children with colostrum, the reasons mentioned were: mother was sick, child was unable to suck, colostrum is harmful to the child and cultural obligations etc.

Tab 3.7.1

	Yes	No	Do not Know
Thick Milk (colostrum) given to child immediately after birth	77%	12%	11%

3.7.b Exclusive breast feeding:

Exclusive breastfeeding in children up to age six months reduces infant mortality due to common childhood illnesses such as diarrhea or pneumonia, and helps for a quicker recovery during illness. Exclusive breast feeding also is helpful for mothers to protect them from illnesses such as ovarian cancers, breast cancer and increase family resources.

Tab 3.7.2

	Less than six months	6-12 months	12 months or more	Never did exclusively BF
Age until mothers breast feed their children exclusively	**38%**	**27%**	**19%**	**15%**

Similarly, for their length of time giving exclusive breast feeding, women respondents came up with different answers as majority (38%) said less than six months followed by six to twelve months which is 27%. 15% said they never exclusively breast fed their children. The respondents who were not breast feeding their child exclusively up to six months of age gave the reasons as mother's sickness, child illness, breast milk is harmful and cultural issues.

As mentioned earlier, good infant and young child feeding practices contributes to reduced infant morbidity & mortality .The survey results are indicative of poor breast feeding practices, protracted cow milk diet and ultimate leading to more illnesses and deaths of children less than five years.

3.7.c Complementary feeding practices:

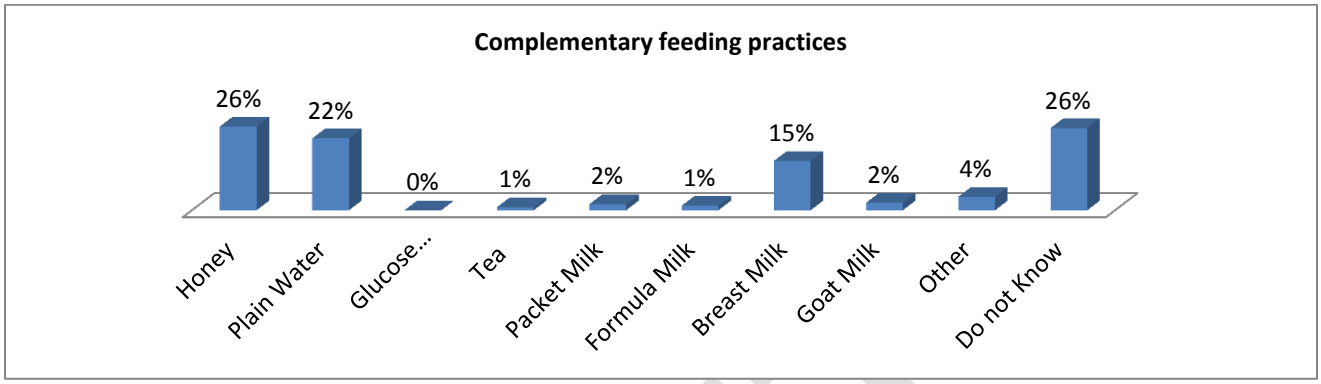
The transition from exclusive breastfeeding to family foods – referred to as complementary feeding – typically covers the period from 6–24 months of age. This is a critical period of growth during which nutrient deficiencies and illnesses contribute globally to higher rates of under nutrition among children under five years of age. In this part of Sindh, complementary feeding practices and food used by children were not encouraging for proper nutrition of the child

Fig 3.7.1 Complementary Feeding Practices

The above graph indicates that there is no proper selection of food to be used as complementary food for children after age of six months. There are three possible reasons behind this. I) Mothers are not considering complementary food as an essential substitute for child health considering it a least priority ii) Mother do not have information regarding complementary feeding practices iii) scarcity of food and de-prioritization of children's food needs

3.7.d Top up milk practices other than breast feeding

Fig 3.7.2

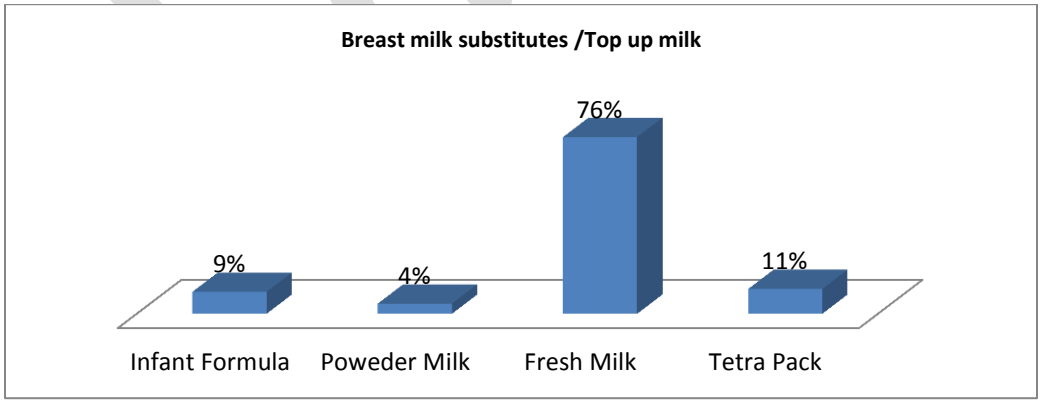


It is a routine practice that mothers in these communities always feeding their babies under six months with other top up milk. And the top up milk includes infant formula milk, fresh milk (goat/cow milk), powdered milk and tetra pack milk. Response to this question was quite surprising as most of the mothers (76%) were giving fresh milk as substitute of breast milk. Children under six months are usually not tolerant of cow's milk. It was not asked from the respondents whether they did dilute the cow's milk, and if they did whether it was for easier digestion or other reasons. If the milk was undiluted it may be a contributing factor to higher malnutrition rates. If diluted with unclean water then the resultant illness may be a contributing factor to higher malnutrition rates.

Tab 3.7.3 Top up milk

	Infant formula	Fresh milk	Powdered milk	Tetra pack
Type of top up milk given to the child	9%	76%	4%	11%

Fig 3.7.3



3.7.e Introduction of Top up Milk- Age of child:

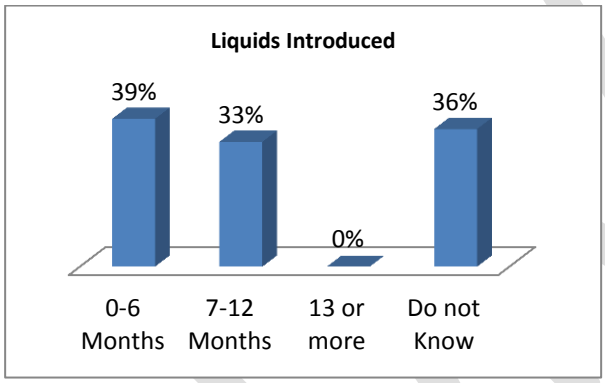
This question ascertains when top up milk or breast milk substitutes were introduced. The results were alarming as many (42%) of the mothers introduced top up milk under six months of age, when the child needs to be exclusively breastfed.

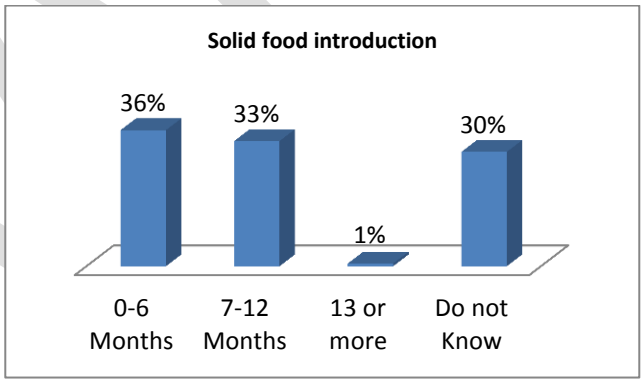
Tab 3.7.4 Age when top up milk introduced

	0-6 month	6-12 months	More than 13months	Do not know
Age of child when top up milk was introduced	**42%**	**22%**	**2%**	**34%**

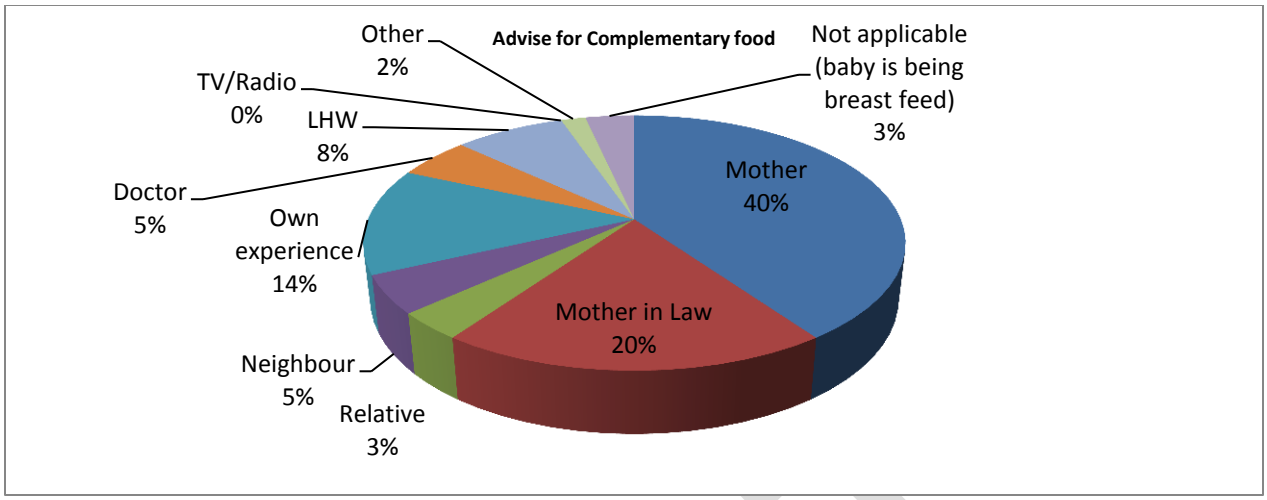
3.7.f. Age of the child when other foods and liquids were introduced

The survey respondents were also asked for age of their child when they introduced liquids such as tea, juices and soup. 39% started other liquids when their children were below age six months and some started after seven months. Some of the respondents said they do not remember or do know when they started. The same groups of respondent were asked for semi solid food for their children. 36% had started semisolid food when their children were under six months. 30% of the respondent did not respond with the exact time when their children started semi solid food.





The mothers were also asked who advised them when to start complementary food for their children. Around 60% responded that either mothers or mother-in laws suggested them to start the food. However, 14% of the respondents used their own experience for starting liquids and semi-solid food for their children.



When mothers were asked, if they prepared complementary food of their children separately or in combination with other family food, the responses received were:

	always	sometimes	When time permits	never	N/A
Complementary food prepared separately	**16%**	**30%**	**12%**	**35%**	**7%**

3. RERPODUCTIVE HEALTH ISSUES

As many nutrition-deficiency illnesses starts during pregnancy and early childhood, women are the key to preventing future malnourished generations. Different nutritional challenges such as low birth weight, stunted growth and micro-nutrient deficiencies among children began during pregnancy and neonatal periods. Thus, to improve nutritional status of the children, actions should start through mothers. Men need to be aware of the need for and supportive of providing pregnant and lactating women and women of reproductive age and children adequate diet as well as birth spacing, antenatal and post natal care health seeking, safe delivery,

For assessing the link between malnutrition and reproductive health, women of reproductive age groups were interviewed. One women of reproductive age group in each household were interviewed for survey study and for anthropometric measurement. These women were asked for number of pregnancies, miscarriages, live births, still births, current pregnancy and currently alive children.

4.1Number of pregnancies

In 274 randomly selected HHs, 225 were women who had been pregnant up at least once till the time of interview. Out of these 225 women respondents, 36% of the women have gone through one to three pregnancies. 37% became pregnant for four to six times. 20% women respondents became pregnant more than seven times. And 7% said they got pregnant for more than 7 times.

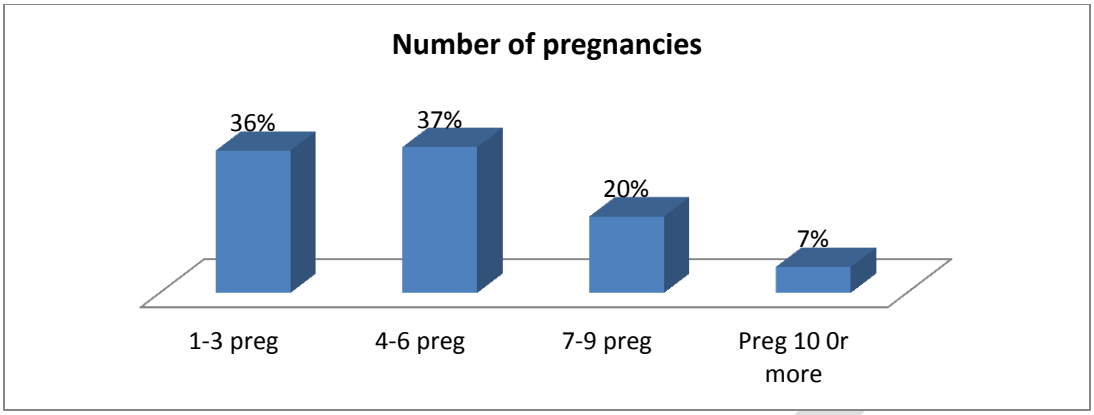


Fig 4.1

These pregnancy events ended with miscarriages, live births, still births. Therefore, all the women respondents were asked for outcome of the pregnancy. 85% of the pregnancies ended in live births, 5% miscarriages, 2 % still births and 8% were current pregnancies.

Tab 4.1 Pregnancy outcomes by # women

	Women's experience of different pregnancy outcomes			
frequency of pregnancy outcome	**Miscarriages**	**Still Birth**	**Live Birth**	**Currently Pregnant**
1	8	8	9	15
2	7	4	18	
3	4		21	
4	2		6	
5 & more	2		30	
Total	23	12	84	15

Tab 4.1a Pregnancy outcome (all)

	# of different pregnancy outcomes reported from 273 pregnancies			
	Miscarriages	Still Birth	Live Birth	Currently Pregnant
Total (273)	52	16	190	15
%age (100)	19%	6%	70%	5%

i) Fig 4.2 Pregnancy Outcome

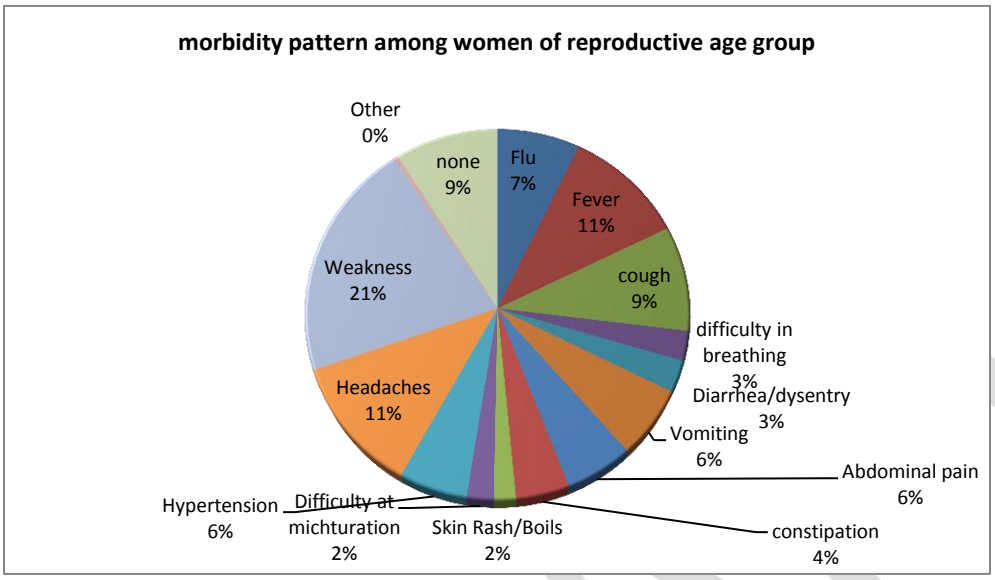
4.2 Disease breakdown among women of reproductive age group:

Morbidities or illness history taken from women in 274 households reflected single or multiple complaints for illnesses mentioned in the pie chart below. These are very common complaints, rural usually women have

Around 21% of women respondents were complaining of weakness they were feeling. Feeling of weakness is one among the major signs of under nutrition. It is a chief complaint for iron deficiency anemia. And when

weakness associated with headache (11% of respondents) then it becomes hall mark of malnutrition. Other major illnesses found were fever (11%), cough (9%) and flu (7%). Diarrhea was only 3%. This pie chart below is indicating that majority have problems associated with under nutrition. Communicable disease are existing but nominal compared to other illnesses.

Fig 4.3 Morbidity among WRA



4.2 .1 Worms Infestation:

Worms infestation is very common in rural women which causes malnutrition including micro nutrient deficiencies. Women were asked for diagnosis of worms and any de-worming medicines taken in the last one year. Sixteen %of the women responded yes they had worms where as 42% were unaware as to whether they had worm infestations. On the other hand, 21% women said yes they had taken medicines for worm infestations and 44 % said they had not taken or did not know if they had taken medicines.

Tab 4.2

Worms Infestation	Yes	No	Not remember
Worm infestation diagnosis in last one year	**16%**	**42%**	**42%**
De-worming medicines taken in last one year	**21%**	**36%**	**44%**

4.2.2 History of hospitalization

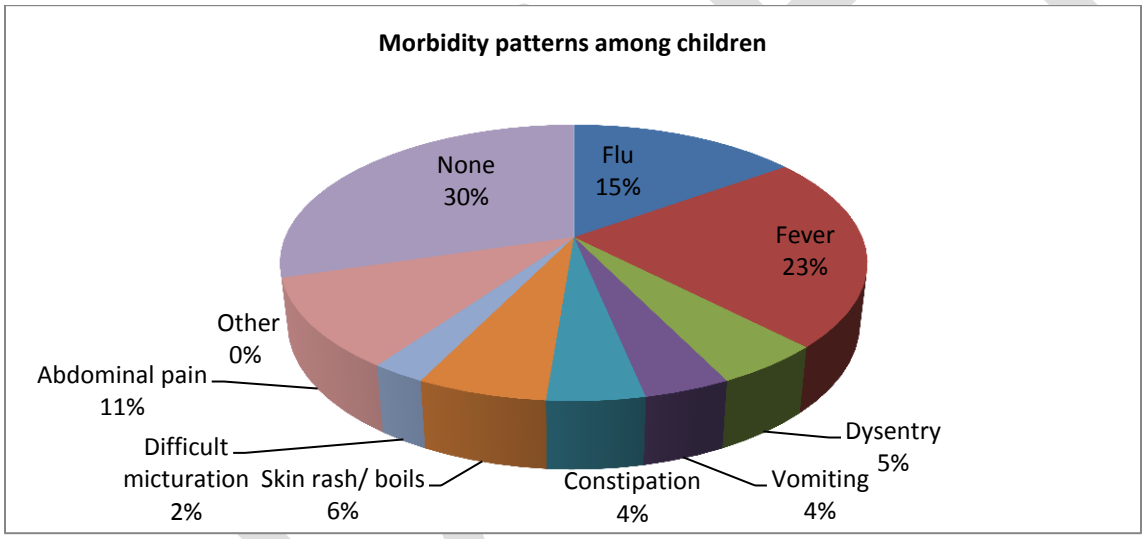
Tab 4.3

History of hospitalization	Yes	No	Not remember
Any history of hospitalization in last one year	**18%**	**43%**	**39%**

18% of the women respondents had a recent history of hospitalization

The number of pregnancies with proportionality high still birth and miscarriages rates, weakness and head ache complaints and history of hospitalization indicate that the women in these communities are spending resources for seeking good health (not clear if the health seeking is timely) but with poor outcomes. Malnutrition is responsible for illnesses and illness can worsen malnutrition thus making a vicious cycle that prevents good health.

4.3. Morbidity patterns among Children 6-59 months of Age For understanding regarding the health problems in children, the interview questionnaire was developed to explore common medical illnesses patterns in children under five. Morbidity patterns in children under five years were analyzed by asking women respondents about the illness history of their children. The questions were asked in laymans colloquial language. Respondents were asked to tell us symptoms and not necessarily the exact illness or name of illness. Based on this, 23% of the respondents said that their children fever and 15% said flu. This was a reflection on the community's understanding of illnesses and there may be several underlying causes of flu symptoms or fever. The number of children who had a history of illness at the time of visit and over the two weeks prior to the visit was as follows



At the time of visit, 54 children had a history of cough for the last two weeks, 34 children had cough with difficulty breathing and 26 had cough only. There were 34 children with history of diarrhea at the time of visit and over the last two weeks before visit. BHU data in the same areas consistently shows ARI at proportionately higher rates then diarrhea throughout the calendar year, though the reported high prevalence can also be related to the season.

4.3.1Worms infestation in children:

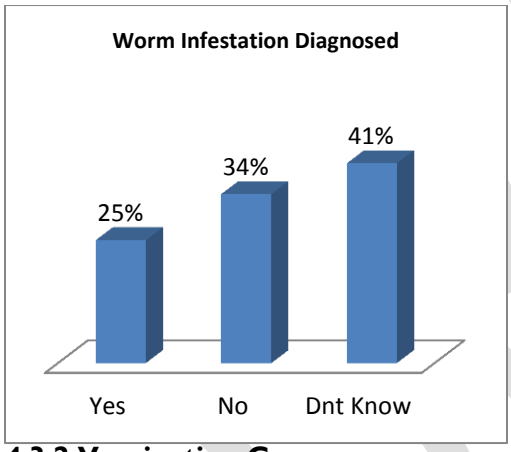
Worms infestation is very common in rural children due to bad hygienic conditions and this produces nutritional deficiencies and anemia. Women respondent in the survey sample were asked for worm infestation of their children. The questions designed to get some verbal details on current worm infestation, over the last six month and history of taking medicines. The results were such that, 25% had worms over the

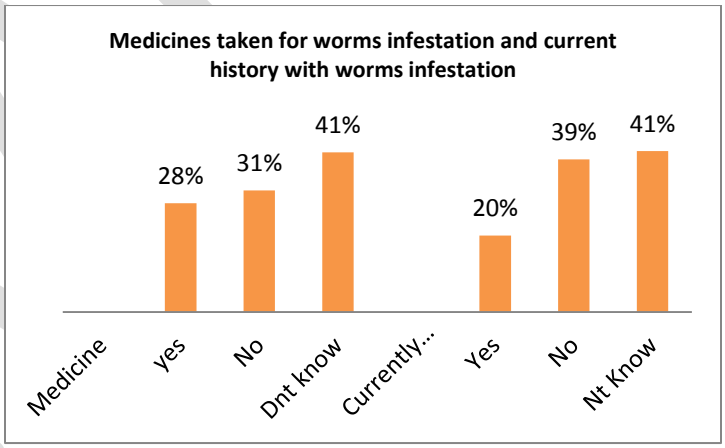
last six months and 41% said they didn't know about worms infestation whereas 28% reported giving medicines for worms infestation and again 41% said they didn't know if they had taken medicines. For current worms infestation, 20% said yes their children had the problem whereas 41 said they did not know. For clear and confirmatory diagnosis of worm infestation, one requires stool and blood sample investigation but this was not done in this study. Verbal inquiries were made and based on that data collected was analyzed.

Tab 5.3.1 Worm Infestation in children

Worm infestation status and treatment	# women (170)	Women's responses about their children		
		Yes	No	Do not know
Worms infestation diagnosed in last six months	**63**	**16**	**21**	**26**
Taking medicines for worm infestation	**61**	**17**	**19**	**25**
Currently having worms infestation	**46**	**9**	**18**	**19**

Fig 4.3.1 &2





4.3.2. Vaccination Coverage:

Vaccination history was taken for vitamin V, BCG, Oral Polio vaccine, DTP, Penta Vaccine, Hep B, and measles. Respondents were not asked for presence of vaccination cards. For easy understanding by the respondents the question about BCG vaccination was asked like vaccination which keeps a small scar on shoulder, polio as drops, Penta[3] in thigh and the ninth month vaccines. Collectively for all vaccinations, the average was 68% yes respondents and 8% no along with 23% of the respondents who were unaware of the vaccination history.

	Yes	No	Do not know
Vaccination of the child	68%	8%	23%

[3] Single vaccine for DPT, Hep B and Hib

5. Recommendations:

5.1 Policy & Program level

- Initiate integrated program to focus on
    - Advocacy for approval of already drafted Sindh PC1 for Nutrition CMAM
    - Support Development of a multi-sector umbrella PC1 for an integrated program addressing the underlying causes of malnutrition – WASH, Health including diet awareness, Livelihoods, Food security (access and variety), Food (micronutrients) and school health and nutrition
    - government capacity to recognize malnutrition (including growth monitoring), refer and treat
    - Introduction and training of multipurpose staff at health facility in nutrition screening every child seeking health care at the facility through integrated Management of childhood illness
    - Inclusion and analysis of nutrition status as part of routine case management at facility level
    - Further investigate HH practices regarding WASH, dilution of fluids (ie cows milk) for children's diet
    - Including Men for awareness and support to pregnant and lactating women and women of reproductive age and children for adequate diet as well as birth spacing, antenatal and post natal care health seeking, safe delivery and general child wellbeing.
    - Effective exclusive breastfeeding 0-6 months
    - Complimentary feeding and proper diet for children aged 6months to two years of age
    - Hygiene awareness and practices
    - Improved young girls and women of reproductive age nutrition
    - Enhanced community participation in malnutrition detection and care and prevention. Especially with regard to mothers, caregivers and decision makers ability to understand monitor and the health of their children.
    - Targeted food distributions/ subsidies and liveliehood improvement program for vulnerable families where economics and food access are the underlying causes of malnutrition. Consider for families with pregnant and lactating mothers
    - Promoting linkages to social welfare support mechanisms for extremely vulnerable families
    - Addressing factors affecting maternal health and contributing to childhood malnutrition i.e. high fertility rates, high levels of anemia, high incidences of miscarriages and still births and maternal morbidity.
    - Explore Design and support strategies in empowering families to address social determinants of poor health outcomes such as low socio-economic status, illiteracy and food insecurity
    - prevention and management of childhood illnesses, ARI, Diarrhea, malaria and vaccine preventable diseases micronutrient intervention (Vit A, iron, folic acid, iodine) to reduce the complications leading to mortality or increased malnutrition.
    - For accurately measuring stunting in children into the future considerable efforts should be made to ensure children's births are registered within a week and one month of delivery. This should be a clear recommendation for any partner working on nutrition into the future.
    - Research rates of diarrhea/ population and in comparison to other areas in Pakistan as well as further investigating the drinking water purity and treatment practices
    - Research and advocacy regarding food security access issues

Operational /Implementation level

Health facility at the community

* Facility based outreach team and/or community based weighing of children ages 0-3years , interpretation of growth curve and counseling for mothers to identify causes of poor growth and support her in remedial actions and referral to nearest health facility
* Outreach visits/follow-up of specific cases referred to hospitals
* Support and promote early birth registration
* IMCI to include nutrition screening and treatment.
* Health Hygiene and diet awarenesss BCC and IEC materials – shown and counseled at facilities and in oput reach
* Use screening at facilities for promoting inclusion of vulnerable children's families in social welfare and targeted assistance packages
* Form male support groups for mothers and child well-being
* Introduce newly wed and couples counseling regarding mother and child well being

Community /household level

* Focus BCC on early and exclusive breast feeding 0-6months and continuity of breast feeding till 24 months
* Addressing the underlying causes to reduce risk of anemia in pregnant women
* Further research on exploring promoters/positive practices in nutrition for women and children
* Improving general awareness of a healthy diet and eating practices
* Improve local access to a varied diet. – promote kitchen gardens and cottage diversified income sources including promoting women's economic opportunities and value chain
* Explore deworming and micronutrient programs
* Improve food and personal hygiene practices
* Investigate and improve water quality
* Introduce savings schemes

Annex I Population Data from EPI sources at BHUs and greater coverage screening

Khairpur

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
1	Babur kandhro	Drib Mehar shah	680	85	83	5	28	116	4.3	24	28.4	15	4	19	21
2	Wazeer khan chandio	Drib Mehar shah	790	97	73	13	30	116	11.2	26	37.1	9	8	17	47
3	Lal bux kandhro	Drib Mehar shah	1650	235	279	35	67	381	9.2	18	26.8	52	36	88	41
4	Mangn goth	Drib Mehar shah	455	65	42	10	28	80	12.5	35	47.5	8	2	10	20
5	Lal din goth	Drib Mehar shah	552	80	81	9	27	117	7.7	23	30.8	0	0	0	#DIV/0!
6	Mehar ujan	Drib Mehar shah	350	50	36	5	15	56	8.9	27	35.7	0	0	0	#DIV/0!
7	Wadi mandhi	Drib Mehar shah	490	70	55	9	14	78	11.5	18	29.5	0	0	0	#DIV/0!
8	Arib ujan	Drib Mehar shah	250	35	27	5	20	52	9.6	38	48.1	0	0	0	#DIV/0!
9	Jan mohd	Drib Mehar shah	105	15	19	0	3	22	0.0	14	13.6	0	0	0	#DIV/0!
10	Paki khoye	Drib Mehar shah	525	75	67	6	21	94	6.4	22	28.7	30	8	38	21
11	Gawar narajo	Drib Mehar shah	175	25	29	2	4	35	5.7	11	17.1	0	0	0	#DIV/0!
12	Ashal narajo	Drib Mehar shah	154	22	23	0	5	28	0.0	18	17.9	0	7	7	100
13	Kamaro	Drib Mehar	112	16	28	5	9	42	11.9	21	33.3	5	1	6	17

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
	ujan	shah													
14	Mahmood Narajo	Drib Mehar shah	140	20	34	2	10	46	4.3	22	26.1	7	4	11	36
15	Ghoth Hafaz Alah bux ujan	Drib Mehar shah	105	15	25	3	8	36	8.3	22	30.6	0	0	0	#DIV/0!
16	Wahid bux manghar	Drib Mehar shah	450	60	93	7	29	129	5.4	22	27.9	14	7	21	33
17	Arbab chana	Drib Mehar shah	500	66	47	10	25	82	12.2	30	42.7	9	9	18	50
18	Kabeer narajo	Drib Mehar shah	490	70	63	6	11	80	7.5	14	21.3	7	6	13	46
19	Gh goth	Drib Mehar shah	950	136	205	20	63	288	6.9	22	28.8	2	0	2	0
20	Jam Goth	Hadal Shah	150	21	29	2	8	39	5.1	21	25.6	0	0	0	#DIV/0!
21	Ashraf Pahor	Hadal Shah	150	22	34	3	8	45	6.7	18	24.4	8	2	10	20
22	Khadim Ujjan	Hadal Shah	50	7	11	1	3	15	6.7	20	26.7	5	3	8	38
23	M.Bux Ujjan	Hadal Shah	100	13	24	5	7	36	13.9	19	33.3	10	5	15	33
24	Soomar Kalhoro	Hadal Shah	60	9	17	0	3	20	0.0	15	15.0	15	2	17	12
25	M.Panah Shumro	Hadal Shah	80	10	16	3	11	30	10.0	37	46.7	0	2	2	100
26	KT.Mir Muhammad	Hadal Shah	850	40	133	12	54	199	6.0	27	33.2	45	24	69	35
27	M.Yousif Ujjan	Hadal Shah	77	25	16	5	10	31	16.1	32	48.4	2	2	4	50
28	Abdul Khan	Hadal Shah	325	24	29	3	10	42	7.1	24	31.0	5	2	7	29

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
29	Haji jam goth 2	Hadal Shah	250	35	25	1	14	40	2.5	35	37.5	0	6	6	100
30	Kabul Narejo	Hadal Shah	245	35	44	2	10	56	3.6	18	21.4	5	4	9	44
31	Rukan Shaikh	Hadal Shah	370	50	41	7	26	74	9.5	35	44.6	8	15	23	65
32	Haji jam got	Hadal Shah	150	21	25	2	5	32	6.3	16	21.9	1	3	4	75
33	Hayat Khan Ujan	Hadal Shah	900	40	39	3	15	57	5.3	26	31.6	10	6	16	38
34	G.Ali Shah	Hadal Shah	400	60	56	4	20	80	5.0	25	30.0	35	5	40	13
35	Waliyo shakh	Hadal Shah	600	80	61	9	36	106	8.5	34	42.5	14	3	17	18
36	Fatahullah Goth	Hadal Shah	200	25	48	1	4	53	1.9	8	9.4	8	2	10	20
37	Jeeand joinjo	Hadal Shah	600	80	98	3	25	126	2.4	20	22.2	18	5	23	22
38	Gul Hassan Mangrenjo	Hadal Shah	1200	250	90	14	31	135	10.4	23	33.3	9	2	11	18
39	Qadam Machi	Hadal Shah	400	25	77	6	18	101	5.9	18	23.8	14	8	22	36
40	Barade khan jatoi	Hadal Shah	300	15	107	22	26	155	14.2	17	31.0	5	1	6	17
41	Sanjan goth	Hadal Shah	300	25	49	1	4	54	1.9	7	9.3	26	0	26	0
42	Jabar Shaikh	Hadal Shah	1500	200	63	4	12	79	5.1	15	20.3	0	0	0	#DIV/0!
43	Moor jabar shaikh	Hadal Shah	1500	250	10	0	1	11	0.0	9	9.1	46	0	46	0
44	Fazall faqer	Hadal Shah	300	35	98	2	5	105	1.9	5	6.7	0	0	0	#DIV/0!
45	Jabar Shaikh	Hadal Shah	1500	200	241	4	15	260	1.5	6	7.3	0	0	0	#DIV/0!
46	Fazall faqer	Hadal Shah	500	25	28	1	2	31	3.2	6	9.7	11	4	15	27

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
	Ahmed														
47	Noor khan lagari	Hadal Shah	430	80	34	5	9	48	10.4	19	29.2	0	0	0	#DIV/0!
48	Payro khan khaskheli	Hadal Shah	450	90	35	4	5	44	9.1	11	20.5	9	1	10	10
49	Mangarjee	Hadal Shah	500	55	74	4	5	83	4.8	6	10.8	26	5	31	16
50	Ashraf Pahor	Hadal Shah	250	25	48	0	2	50	0.0	4	4.0	0	0	0	#DIV/0!
51	Mitho dero	Hadal Shah	1000	120	119	5	12	136	3.7	9	12.5	17	6	23	26
52	Sono Khan Jalban	Hadal Shah	1000	120	37	22	21	80	27.5	26	53.8	15	26	41	63
53	Jahan khan laghari	Hadal Shah	900	80	59	7	15	81	8.6	19	27.2	29	25	54	46
54	Rawind ghumro	Hadal Shah	500	60	116	2	12	130	1.5	9	10.8	24	0	24	0
55	Bilan goth	Hadal Shah	400	80	35	6	21	62	9.7	34	43.5	3	5	8	63
56	Khawal dharejo	Hadal Shah	500	60	65	2	5	72	2.8	7	9.7	13	0	13	0
57	Shahan lashari	Hadal Shah	200	15	32	2	2	36	5.6	6	11.1	0	0	0	#DIV/0!
58	Jahan khan lashari	Hadal Shah	1000	70	53	3	8	64	4.7	13	17.2	16	7	23	30
59	Mehrab Bhutto	Hadal Shah	800	110	113	5	10	128	3.9	8	11.7	17	4	21	19
60	Subhan Rahojo	Hadal Shah	400	67	27	0	1	28	0.0	4	3.6	0	0	0	#DIV/0!
61	Shah pur	Hadal Shah	1200	150	109	2	12	123	1.6	10	11.4	22	2	24	8
62	Mohd Mithal Ujjan	Fateh pur	390	56	69	2	20	91	2.2	22	24.2	12	2	14	14

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
63	Chodao	Fateh pur	1500	215	148	24	56	228	10.5	25	35.1	13	3	16	19
64	Gh Hussain gopang	Fateh pur	800	114	65	12	38	115	10.4	33	43.5	6	1	7	14
65	Sono gopang	Fateh pur	1300	186	83	8	27	118	6.8	23	29.7	9	2	11	18
66	Buksho soomro	Fateh pur	800	115	88	12	54	154	7.8	35	42.9	15	7	22	32
67	Ismaial Tawri	Fateh pur	210	30	26	10	14	50	20.0	28	48.0	1	2	3	67
68	sanwal waro tawri	Fateh pur	426	60	53	7	21	81	8.6	26	34.6	12	3	15	20
69	Giyo shabni	Fateh pur	385	55	45	18	13	76	23.7	17	40.8	5	3	8	38
70	Fathy pur	Fateh pur	500	70	86	1	13	100	1.0	13	14.0	19	3	22	14
71	Abdul ghafar	Fateh pur	400	60	69	5	22	96	5.2	23	28.1	9	2	11	18
72	Jamal uddin khaskhaly	Fateh pur	200	28	28	1	14	43	2.3	33	34.9	5	4	9	44
73	M Ibhraheem soomro	Fateh pur	1120	160	89	9	51	149	6.0	34	40.3	12	8	20	40
74	Mehoo mehar	Fateh pur	250	35	46	5	18	69	7.2	26	33.3	20	7	27	26
75	Mahar Goth	Fateh pur	100	10	23	6	8	37	16.2	22	37.8	8	7	15	47
76	Qadir Bux	Fateh pur	380	50	46	9	16	71	12.7	23	35.2	6	9	15	60
77	Gh mohd mahar	Fateh pur	530	55	93	11	33	137	8.0	24	32.1	20	6	26	23
78	Mirjat	Kotidji	160	20	40	7	9	56	12.5	16	28.6	0	0	0	#DIV/0!
79	Farz.M.Bugti	Kotidji	130	15	13	2	3	18	11.1	17	27.8	5	1	6	17

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
80	Payar Ali	Kotidji	60	6	9	0	5	14	0.0	36	35.7	1	6	7	86
81	Esa khan Abro	Kotidji	100	10	12	2	6	20	10.0	30	40.0	0	0	0	#DIV/0!
82	Imdaad Ali	Kotidji	80	8	12	2	1	15	13.3	7	20.0	8	3	11	27
83	M.Ishaq Bugti	Kotidji	120	10	13	2	7	22	9.1	32	40.9	16	6	22	27
84	Toro shah	Kotidji	70	18	44	8	11	63	12.7	17	30.2	9	3	12	25
85	Tando shah	Kotidji	60	12	27	1	1	29	3.4	3	6.9	0	0	0	#DIV/0!
86	Rind Hajano	Kotidji	1000	140	101	12	34	147	8.2	23	31.3	40	21	61	34
87	Channa Theba	Kotidji	680	100	92	16	28	136	11.8	21	32.4	17	0	17	0
88	Khardo	Kotidji	780	780	208	22	51	281	7.8	18	26.0	20	8	28	29
89	Kot Muhalla	Kotidji	220	20	10	4	6	20	20.0	30	50.0	6	1	7	14
90	Muhalla Channa	Kotidji	350	40	45	4	11	60	6.7	18	25.0	0	0	0	#DIV/0!
91	Magsi	Kotidji	180	15	12	1	9	22	4.5	41	45.5	5	1	6	17
92	Molidad Bugti	Kotidji	300	35	35	3	11	49	6.1	22	28.6	2	1	3	33
93	Qazi Abbas	Kotidji	500	70	60	4	29	93	4.3	31	35.5	6	1	7	14
94	khaskheli	Kotidji	100	10	18	6	4	28	21.4	14	35.7	0	0	0	#DIV/0!
95	S.Dital shah	Kotidji	650	100	91	10	43	144	6.9	30	36.8	6	5	11	45
96	Muhalla Bani	Kotidji	620	120	65	13	24	102	12.7	24	36.3	3	0	3	0
97	Ali Bux	Kotidji	490	70	84	22	24	130	16.9	18	35.4	0	0	0	#DIV/0!
98	Kot kila	Kotidji	640	100	60	15	14	89	16.9	16	32.6	0	0	0	#DIV/0!
99	Abu Zaidi	Kotidji	490	70	64	5	13	82	6.1	16	22.0	4	1	5	20
100	Hussan Bux	Kotidji	110	15	19	0	5	24	0.0	21	20.8	0	0	0	#DIV/0!

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
101	Chando	Kotidji	70	10	15	0	2	17	0.0	12	11.8	2	0	2	0
102	Lashri Goth	Kotidji	182	24	34	0	2	36	0.0	6	5.6	6	3	9	33
103	Gopang	Kotidji	740	120	58	6	14	78	7.7	18	25.6	18	11	29	38
104	Abbasi goth	Kotidji	380	35	49	3	8	60	5.0	13	18.3	7	2	9	22
105	Bahar Pulphto	Kotidji	700	95	91	23	34	148	15.5	23	38.5	8	9	17	53
106	Sommro	Kotidji	315	45	62	8	13	83	9.6	16	25.3	3	1	4	25
107	Angram khan	Kotidji	210	30	56	6	8	70	8.6	11	20.0	20	8	28	29
108	Gul hassan	Kotidji	250	30	73	13	19	105	12.4	18	30.5	15	3	18	17
109	Usman Goth	Kotidji	380	50	28	13	19	60	21.7	32	53.3	5	0	5	0
110	Choro Goth	Kotidji	480	65	65	9	22	96	9.4	23	32.3	6	1	7	14
111	Agan kesar	Kotidji	220	30	40	5	10	55	9.1	18	27.3	2	0	2	0
112	Goth kesul	Kotidji	150	15	27	5	8	40	12.5	20	32.5	1	0	1	0
113	Murad goth	Kotidji	700	90	95	14	36	145	9.7	25	34.5	13	1	14	7
114	pariyo muhla	Kotidji	120	15	20	2	4	26	7.7	15	23.1	0	1	1	100
115	Somro muhla	Kotidji	200	25	38	1	10	49	2.0	20	22.4	0	0	0	#DIV/0!
116	M.Puhlphto	Kotidji	220	25	33	1	1	35	2.9	3	5.7	0	0	0	#DIV/0!
117	Tando shah	Kotidji	210	30	40	1	8	49	2.0	16	18.4	17	4	21	19
118	Hazar khan	Kotidji	490	70	47	6	19	72	8.3	26	34.7	3	2	5	40
119	Chetan	Kotidji	500	71	27	11	22	60	18.3	37	55.0	5	9	14	64
120	Tantro shah	Kotidji	500	72	97	8	20	125	6.4	16	22.4	16	9	25	36
121	Mir. Imdaad	Kotidji	1700	250	137	0	24	161	0.0	15	14.9	19	8	27	30
122	karum baig	Kotidji	350	50	39	5	23	67	7.5	34	41.8	18	4	22	18
123	pir dilbar	Kotidji	1085	155	1	26	51	78	33.3	65	98.7	17	7	24	29

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
124	Julbani	Kotidji	410	58	80	15	19	114	13.2	17	29.8	0	0	0	#DIV/0!
125	Mir.Mithal	Kotidji	50	6	8	4	5	17	23.5	29	52.9	5	1	6	17
126	kot banglo	Kotidji	1700	250	94	0	23	117	0.0	20	19.7	10	9	19	47
127	vilage kariro	Kotidji	780	130	129	17	42	188	9.0	22	31.4	12	8	20	40
128	New mehrano	Kotidji	380	50	31	9	14	54	16.7	26	42.6	12	3	15	20
129	Mir Gulan	Kotidji	280	40	71	9	15	95	9.5	16	25.3	2	2	4	50
130	Seed pur	Sadar gi bhatti	210	30	25	8	11	44	18.2	25	43.2	1	1	2	50
131	Chak shaikh	Sadar gi bhatti	1050	150	95	20	52	167	12.0	31	43.1	21	8	29	28
132	Wastra	Sadar gi bhatti	2100	300	199	12	59	270	4.4	22	26.3	21	2	23	9
133	Bodli Maser	Sadar gi bhatti	120	15	20	1	5	26	3.8	19	23.1	9	2	11	18
134	Ghuniya	Sadar gi bhatti	600	85	86	11	29	126	8.7	23	31.7	12	9	21	43
135	Matani shaikh	Sadar gi bhatti	200	25	22	3	15	40	7.5	38	45.0	13	7	20	35
136	Nagar ujan	Sadar gi bhatti	800	114	115	3	14	132	2.3	11	12.9	26	6	32	19
137	Payro ujan	Sadar gi bhatti	400	57	20	7	9	36	19.4	25	44.4	3	9	12	75
138	Malan narajo	Sadar gi bhatti	600	86	105	9	30	144	6.3	21	27.1	9	19	28	68
139	Jumo ujjan	Sadar gi bhatti	100	15	12	1	9	22	4.5	41	45.5	2	0	2	0
140	Ramzan junijo	Sadar gi bhatti	70	10	12	1	3	16	6.3	19	25.0	3	1	4	25

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
141	Relani ujjan	Sadar gi bhatti	150	20	15	8	9	32	25.0	28	53.1	7	2	9	22
142	Dhani parto	Sadar gi bhatti	100	15	16	1	7	24	4.2	29	33.3	5	2	7	29
143	Mor khan kalhoro	Sadar gi bhatti	70	10	10	1	4	15	6.7	27	33.3	1	1	2	50
144	Ali bux ujjan	Sadar gi bhatti	50	7	7	2	6	15	13.3	40	53.3	2	5	7	71
145	Mehar Ali ujjan	Sadar gi bhatti	200	28	20	8	10	38	21.1	26	47.4	2	7	9	78
146	Budhal Kalhoro	Sadar gi bhatti	20	3	4	0	1	5	0.0	20	20.0	2	0	2	0
147	Hussain kalhoro	Sadar gi bhatti	60	8	5	0	1	6	0.0	17	16.7	13	2	15	13
148	Nangreja	Sadar gi bhatti	110	16	11	5	10	26	19.2	38	57.7	5	1	6	17
149	M Aalim kalhoro	Sadar gi bhatti	100	14	9	0	1	10	0.0	10	10.0	3	2	5	40
150	Sadardin lakho	Sadar gi bhatti	68	8	25	2	8	35	5.7	23	28.6	0	0	0	#DIV/0!
151	shah muhammad	Sadar gi bhatti	126	18	21	5	20	46	10.9	43	54.3	0	0	0	#DIV/0!
152	Arbab khaloro	Sadar gi bhatti	250	30	47	1	9	57	1.8	16	17.5	4	2	6	33
153	Jorejo	Sadar gi bhatti	120	30	62	3	13	78	3.8	17	20.5	19	0	19	0
154	M.Matal	Sadar gi bhatti	80	10	14	0	6	20	0.0	30	30.0	2	1	3	33
155	Peer jeewan	Sadar gi	770	110	113	10	36	159	6.3	23	28.9	20	13	33	39

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
		bhatti													
156	Karamdin	Sadar gi bhatti	120	17	71	8	26	105	7.6	25	32.4	2	4	6	67
157	Jhan khan	Sadar gi bhatti	140	20	20	4	9	33	12.1	27	39.4	20	0	20	0
158	sadar ji	Sadar gi bhatti	160	110	148	19	55	222	8.6	25	33.3	19	7	26	27
159	Abid Colony	Jeelani	1800	250	224	42	10	276	15.2	4	18.8	46	2	48	4
160	Ali raza shah	Jeelani	1100	160	95	21	2	118	17.8	2	19.5	38	2	40	5
161	Jeelani mohullah	Jeelani	2000	300	47	10	3	60	16.7	5	21.7	22	2	24	8
162	New village	Jeelani	1500	200	76	6	0	82	7.3	0	7.3	7	2	9	22
163	Saida Goth	Jeelani	1200	170	97	20	3	120	16.7	3	19.2	18	2	20	10
164	Staff Quarter	Jeelani	770	110	40	3	0	43	7.0	0	7.0	4		4	0
165	Chana muhalla	Jeelani	1250	250	59	4	6	69	5.8	9	14.5	11	8	19	42
166	Shaheedabad	Jeelani	1500	250	43	2	2	47	4.3	4	8.5	3		3	0
167	Kachi Abadi Faizabad	Jeelani	1050	150	83	71	46	200	35.5	23	58.5	15	25	40	63
168	Saleemabad	Jeelani	315	45	30	23	13	66	34.8	20	54.5	5	0	5	0
169	Faizabad Colony	Jeelani	350	50	36	21	12	69	30.4	17	47.8	3	0	3	0
170	KhoKhar Goth	Jeelani	460	65	63	26	20	109	23.9	18	42.2	29	20	49	41
171	Gahri Pul (Buttro)	Jeelani	3000	500	186	28	11	225	12.4	5	17.3	23	3	26	12

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
172	Haji Daem	layari	126	18	37	1	5	43	2.3	12	14.0	4	0	4	0
173	Badal mangi	layari	280	30	63	2	26	91	2.2	29	30.8	9	7	16	44
174	Malook Lanjwani	layari	800	100	49	8	22	79	10.1	28	38.0	9	3	12	25
175	Gondal	layari	525	70	68	9	20	97	9.3	21	29.9	3	0	3	0
176	lanchni	layari	390	55	38	17	18	73	23.3	25	47.9	2	1	3	33
177	Datar dino	layari	406	58	44	4	12	60	6.7	20	26.7	17	2	19	11
178	Abra goth	layari	56	8	11	0	3	14	0.0	21	21.4	0	0	0	#DIV/0!
179	Arain goth	layari	91	13	12	1	0	13	7.7	0	7.7	0	0	0	#DIV/0!
180	Shadad buro	layari	357	50	42	1	10	53	1.9	19	20.8	9	7	16	44
181	Sommar boriro	layari	420	70	74	7	18	99	7.1	18	25.3	13	4	17	24
182	Rabun rajper	layari	1200	150	129	14	39	182	7.7	21	29.1	6	0	6	0
183	Sher khan	layari	1300	150	72	23	29	124	18.5	23	41.9	23	4	27	15
184	Khanan buriro	layari	5600	800	281	75	109	465	16.1	23	39.6	42	29	71	41
185	M.Khan katohar	layari	800	100	86	7	27	120	5.8	23	28.3	13	7	20	35
186	Dilawar katohar	layari	100	20	4	0	1	5	0.0	20	20.0	2	1	3	33
187	Bahawal katohar	layari	200	35	12	9	7	28	32.1	25	57.1	4	10	14	71
188	G.Raza Merbahar goth	layari	250	40	19	9	11	39	23.1	28	51.3	5	3	8	38
189	Hazoor bux	layari	400	60	39	8	13	60	13.3	22	35.0	5	10	15	67

s:no	Village	UC	Total population	House hold	Normal screening	SAM	MAM	Total Screening	SAM %	MAM %	GAM %	PLW Normal Screening	MAM	Total Screening PLW	PLW%
190	Hussainabad	layari	2000	230	172	9	52	233	3.9	22	26.2	27	6	33	18
191	Jumo Maher	layari	55	9	5	1	1	7	14.3	14	28.6	4	0	4	0
192	G.Raza Katwar goth	layari	200	20	10	2	3	15	13.3	20	33.3	0	0	0	#DIV/0!
193	Haji Ghulam Mohammad	layari	70	6	9			9	0.0	0	0.0	1	0	1	0
194	kajlo katohar	layari	290	30	41	18	24	83	21.7	29	50.6	10	3	13	23
195	Matilo mirbhar	layari	200	30	29	1	9	39	2.6	23	25.6	9	0	9	0
196	Sirai Imam dino	layari	70	10	7	1	4	12	8.3	33	41.7	3	1	4	25
197	Jogi	layari	490	70	56	10	28	94	10.6	30	40.4	12	9	21	43
198	jani burori	layari	435	60	55	4	21	80	5.0	26	31.3	0	0	0	#DIV/0!
199	Khanpur Qurashi	layari	228	38	15	0	1	16	0.0	6	6.3	2	2	4	50
200	Daim Goth	layari	445	70	67	9	28	104	8.7	27	35.6	7	18	25	72
201	layari	layari	1500	250	119	11	27	157	7.0	17	24.2	0	0	0	#DIV/0!
	Grand Total	Khaipur	106966	15571	11623	1553	3365	16541	9.4	20	29.7	1922	818	2740	30
		Sukkur	56966	8193	5105	473	1364	6964	7.0	20	27	1080	386	1466	26
	Khaipur +	Sukkur	163932	23764	16728	2026	4729	23505	9	20	29.0	3002	1204	4206	29

Sukkur Detail EPI population stats and screening results

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
1	Bhamboo Goth	Nooraja	250	1300	40	32	8	80	10	40	50	21	19	40	48
2	Chungha Goth	Nooraja	200	2100	61	17	10	88	11	19	31	16	3	19	16
3	Kot Sadique Shah	Nooraja	35	250	19	15	2	36	6	42	47	5	4	9	44
4	Goth Chakar Mako	Nooraja	20	175	20	7	2	29	7	24	31	0	1	1	100
5	Kot Mahesar	Nooraja	5	39	26	20	2	48	4	42	46	2	0	2	0
6	Goth Qabil	Nooraja	23	210	33	10	7	50	14	20	34	4	12	16	75
7	Goth Peeral	Nooraja	65	500	48	21	18	87	21	24	45	4	8	12	67
8	Gohram Goth	Nooraja	30	400	24	4	2	30	7	13	20	10	0	10	0
9	Mehesar Goth	Nooraja	30	500	39	17	2	58	3	29	33	0	0	0	#DIV/0!
10	Misri Mir Bahar	Nooraja	22	200	90	12	7	109	6	11	17	4	5	9	56
11	Goth Khan Shah	Nooraja	48	480	55	6	1	62	2	10	11	5	0	5	0
12	Village Qaim Bhutto	Nooraja	8	120	2			2	0	0	0	2	0	2	0
13	Goth Sachal Dino	Nooraja	30	300	12	0	0	12	0	0	0	6	2	8	25
14	Satar M.Samejo	Nooraja	20	170	4	3	2	9	22	33	56	3	0	3	0
15	Sachal Dino Kalhoro	Nooraja	30	300	12			12	0	0	0	6	2	8	25
16	Noraja Goth	Nooraja	20	120	36	1	0	37	0	3	3	0	0	0	#DIV/0!
17	Bhandki{sachedino goth}	Nooraja	20	170	30	8	4	42	10	19	29	0	0	0	#DIV/0!
18	Gulo Mahar	Nooraja	10	80	9	0	0	9	0	0	0	4	1	5	20
19	Arbab Khan	Nooraja	20	140	15	6	3	24	13	25	38	4	2	6	33
20	Dildar Goth	Nooraja	100	1000	75	10	5	90	6	11	17	6	3	9	33
21	Khuda Dino	Sangi	15	150	17	2	1	20	5	10	15	5	0	5	0
22	Rajiri	Sangi	80	800	32	10	9	73	12	14	26	6	2	8	25

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
23	Sultan khan Goth	Sangi	70	450	35	5	3	43	7	12	19	10	4	14	29
24	Abdul Hakim Mirani	Sangi	40	300	21	2	1	24	4	8	13	0	0	0	
25	Waloo Goth	Sangi	57	370	61	6	3	70	4	9	13	9	1	10	10
26	Syed Mohalla	Sangi	34	84	6	2	0	8	0	25	25	6	0	6	0
27	Pandhi	Sangi	25	143	30	1	0	31	0	3	3	3	2	5	40
28	Dost Ali	Sangi	40	500	60	12	9	81	11	15	26	12	2	14	14
29	Muhib Ali	Sangi	10	50	7	1	0	8	0	13	13	3	1	4	25
30	Qazi Mohalla	Sangi	30	300	19	2	1	22	5	9	14	0	0	0	#DIV/0!
31	Thareachani	Sangi	450	2500	105	13	5	123	4	11	15	13	0	13	0
32	Qasim Pur	Sangi	30	300	62	8	3	73	4	11	15	6	0	6	0
33	G.Rasool Mahar	Sangi	28	250	41	11	3	55	5	20	25	5	1	6	17
34	Sewraa	Sangi	81	567	40	2	2	44	5	5	9	4	0	4	0
35	Imam Bux	Sangi	10	75	26	3	0	29	0	10	10	6	2	8	25
36	Ali Bux Katto	Sangi	300	1500	10	6	4	20	20	30	50	4	4	8	50
37	Mochi Goth,Miran Pur	Sangi	22	150	93	8	3	104	3	8	11	25	1	26	4
38	Sohro	Sangi	300	900	53	12	4	69	6	17	23	19	3	22	14
39	Qadir Bux Kalhoro	Sangi	100	700	47	2	0	49	0	4	4	10	1	11	9
40	Rana Habib Farm	Sangi	12	84	26	1	1	28	4	4	7	7	1	8	13
41	Goth Punhoo	Sangi	20	115	40	2	0	42	0	5	5	6	1	7	14
42	Javed Shah Goth	Sangi	7	25	6	0	1	7	14	0	14	0	0	0	#DIV/0!
43	Chachar (Near Rana Habib Goth)	Sangi	8	60	5	1	0	6	0	17	17	0	0	0	#DIV/0!
44	Gazi Khan	Sangi	35	212	72	5	2	79	3	6	9	18	8	26	31
45	Abdul Raheem Jagirani	Sangi	75	600	44	12	7	63	11	19	30	11	3	14	21

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
46	David Farm	Sangi	15	100	15	3	3	21	14	14	29	8	1	9	11
47	Col.Fateh Khan	Sangi	30	600	23	12	1	36	3	33	36	3	0	3	0
48	Mola Bux Jatoi	Sangi	90	350	18	3	1	22	5	14	18	17	2	19	11
49	Miran Pur	Sangi	50	1200	78	13	1	92	1	14	15	24	4	28	14
50	Goth Sangi	Sangi	35	600	15	2	1	18	6	11	17	20	2	22	9
51	Ghulam Rasool Shanbabni	Sangi	8	80	13	3	3	19	16	16	32	2	7	9	78
52	Goth Umar Buriro	Sangi	150	1050	66	29	9	104	9	28	37	18	10	28	36
53	Goth Suleman Kalhoro	Sangi	70	400	68	24	14	106	13	23	36	24	17	41	41
54	Bozdar farm	Sangi	5	35	10	0	1	11	9	0	9	0	1	1	100
55	Goth Abdul Shakoor	Sangi	20	140	30	3	1	34	3	9	12	5	0	5	0
56	Goth Amir Bux Bhayo	Sangi	16	112	17	5	0	22	0	23	23	2	4	6	67
57	Goth Regulator	Sangi	10	70	11	2	0	13	0	15	15	1	1	2	50
58	Goth Waryam Buriro	Sangi	25	180	37	24	5	66	8	36	44	18	6	24	25
59	Village Nirch	Sangi	200	1800	139	71	24	234	10	30	41	21	3	24	13
60	Goth Kajlo/Piyaro Khan	Sangi	4	25	11	2	2	15	13	13	27	0	0	0	#DIV/0!
61	Goth Ali Nawaz Samejo	Sangi	4	30	6	1	2	9	22	11	33	4	1	5	20
62	Goth Gul Muhammad	Sangi	30	200	35	19	5	59	8	32	41	10	5	15	33
63	Goth Ahsan Chachar	Sangi	8	56	17	1	0	18	0	6	6	4	0	4	0
64	Muhammad	Sangi	6	38	5	2	1	8	13	25	38	0	0	0	#DIV/0!

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
	Soomar Shanbani														
65	Goth Hussain Bux Shanbabni	Sangi	12	60	2	4	2	8	25	50	75	0	0	0	#DIV/0!
66	Goth Sajjan	Sangi	4	40	1	5	1	7	14	71	86	2	0	2	0
67	Goth Iqbal Shanbani	Sangi	10	170	23	5	1	29	3	17	21	5	1	6	17
68	Goth Ali Mohammad	Sangi	10	100	18	4	1	23	4	17	22	5	0	5	0
69	Shaikh Mohalla	Sangi	30	250	20	7	3	30	10	23	33	5	0	5	0
70	Goth Muhammad Hayat	Sangi	7	120	24	1	3	28	11	4	14	3	0	3	0
71	Goth Soroho Kalhoro	Sangi	5	50	10	2	3	15	20	13	33	2	1	3	33
72	Goth Taj Mohammad	Sangi	14	100	10	7	3	20	15	35	50	0	0	0	#DIV/0!
73	Goth Datar Dino	Sangi	11	110	26	10	3	39	8	26	33	0	0	0	#DIV/0!
74	Goth Godho Khan	Sangi	42	300	24	12	4	40	10	30	40	0	0	0	#DIV/0!
75	Mir Muhammad Samejo	Sangi	5	40	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	3	7	10	70
76	Goth Ghawar Khan	Sangi	5	30	3	4	0	7	0	57	57	2	1	3	33.3
77	Goth Ramzan Shanbani	Sangi	15	105	42	12	7	61	11	20	31	5	7	12	58
78	Goth Noor Khan Jatoi	Sangi	10	70	14	5	2	21	10	24	33	1	2	3	67
79	Goth Muhammad Panjal	Sangi	40	270	30	19	3	52	6	37	42	16	8	24	33
80	Goth Bachal	Sangi	19	150	12	2	1	15	7	13	20	2	2	4	50
81	Goth Aaro	Sangi	70	450	61	13	2	76	3	17	20	4	2	6	33

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
82	Mushtaque Farm/Tanveer Farm	Sangi	30	240	34	16	9	59	15	27	42	12	3	15	20
83	Goth Hupo	Sangi	30	260	20	17	4	41	10	41	51	2	2	4	50
84	Goth Nazar Soomro	Sangi	6	60	22	1	1	24	4	4	8	3	0	3	0
85	Allah Rakhiyo Chachar	Sangi	13	160	28	6	1	35	3	17	20	6	0	6	0
86	Ilyas Farm	Sangi	8	56	7	4	0	11	0	36	36	2	1	3	33
87	Ayoob Farm	Sangi	4	20	4	2	0	6	0	33	33	0	0	0	#DIV/0!
88	Khursheed Farm	Sangi	4	28	3	3	2	8	25	38	63	0	0	0	#DIV/0!
89	Genral Bashir	Sangi	5	40	12	3	0	15	0	20	20	1	3	4	75
90	Noor Din Bhayo	Sangi	10	70	10	1	2	13	15	8	23	3	3	6	50
91	Khuda Bux	Sangi	40	280	22	4	0	26	0	15	15	4	3	7	43
92	Jam Goth	Sangi	15	170	38	12	4	54	7	22	30	0	0	0	#DIV/0!
93	Haji Noor Din	Sangi	12	94	28	6	2	36	6	17	22	0	0	0	#DIV/0!
94	Bhai Khan	Sangi	7	60	11	5	4	20	20	25	45	0	0	0	#DIV/0!
95	Dur Muhammad	Sangi	25	220	32	17	8	57	14	30	44	19	3	22	14
96	Andal Shah Goth	Sangi	35	290	19	19	7	45	16	42	58	36	30	66	45
97	Village Jogi	Soomra Panhwari	22	170	22	8	5	35	14	23	37	5	1	6	17
98	Village Chohar	Soomra Panhwari	28	200	19	6	1	26	4	23	27	8	4	12	33
99	Ishaque Indhar	Soomra Panhwari	76	532	43	7	3	53	6	13	19	8	5	13	38
100	Goth Haji M.Qasim	Soomra Panhwari	75	525	39	12	3	54	6	22	28	6	4	10	40

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
101	Village Soomra	Soomra Panhwari	300	2000	89	26	7	122	6	21	27	24	2	26	8
102	Village Panhwari	Soomra Panhwari	200	1500	115	17	2	134	1	13	14	8	2	10	20
103	Village Bulo Mahar	Soomra Panhwari	40	240	18	11	6	35	17	31	49	5	10	15	67
104	Village Dodo Mahar	Soomra Panhwari	30	200	22	11	3	36	8	31	39	9	4	13	31
105	Village Faqeer Malik	Soomra Panhwari	12	55	7	1	2	10	20	10	30	2	2	4	50
106	Goth Qadir Bux	Soomra Panhwari	18	126	34	9	3	46	7	20	26	5	5	10	50
107	Goth Abdullah Shah	Soomra Panhwari	60	360	42	14	3	59	5	24	29	11	1	12	8
108	Ali Hasan Korai	Dadloo	16	160	72	3	9	84	11	4	14	10	2	12	17
109	Izat Khan Korai	Dadloo	100	1000	48	10	3	61	5	16	21	6	1	7	14
110	Sajan Sehtoo	Dadloo	50	300	53	8	1	62	2	13	15	10	0	10	0
111	Maqbool Shaikh	Dadloo	26	105	7	5	1	13	8	38	46	3	0	3	0
112	Khero Sangi	Dadloo	110	650	38	15	12	65	18	23	42	16	10	26	38
113	Janan Khan	Dadloo	68	480	56	2	3	61	5	3	8	13	5	18	28
114	Rustam Korai	Dadloo	40	380	106	18	5	129	4	14	18	8	5	13	38
115	Sharef Korai	Dadloo	18	210	40	13	0	53	0	25	25	5	2	7	29
116	Khuda Bux Selro	Dadloo	40	300	75	4	1	80	1	5	6	4	0	4	0
117	Sawan Shikari	Dadloo	18	150	22	4	2	28	7	14	21	2	2	4	50
118	Pir Bux Malik	Dadloo	20	200	28	4	0	32	0	13	13	12	1	13	8
119	Nibhaw Malik	Dadloo	17	160	47	3	3	53	6	6	11	6	0	6	0
120	Aachar Shaikh	Dadloo	15	150	8	8	1	17	6	47	53	0	1	1	100
121	Koro Khan Korai	Dadloo	270	2000	47	18	2	67	3	27	30	3	0	3	0

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
122	Usman Korai	Dadloo	100	150	22	5	1	28	4	18	21	6	2	8	25
123	Lemo Buloo	Dadloo	10	100	14	4	3	21	14	19	33	1	0	1	0
124	Moli Dino	Dadloo	500	1500	56	21	7	84	8	25	33	23	0	23	0
125	Dodloi	Dadloo	120	960	51	4	1	56	2	7	9	12	1	13	8
126	Makro Malik	Dadloo	16	128	19	1	1	21	5	5	10	4	0	4	0
127	Ali Bux Dharejo	Dadloo	20	111	19	7	0	26	0	27	27	7	0	7	0
128	Nawab Korai	Dadloo	125	260	38	12	1	51	2	24	25	10	0	10	0
129	Imam Bux	Dadloo	86	420	37	4	2	43	5	9	14	12	0	12	0
130	Buxo seelro	Dadloo	250	1750	44	4	1	49	2	8	10	10	1	11	9
131	Nawab Billlani	Dadloo	18	132	19	6	2	27	7	22	30	5	2	7	29
132	Budhoo Khan	Dadloo	12	200	26	13	0	39	0	33	33	8	2	10	20
133	Soomra Korai	Dadloo	15	250	26	21	2	49	4	43	47	19	10	29	34
134	Bero Buloo	Dadloo	15	200	20	19	5	44	11	43	55	0	0	0	#DIV/0!
135	Sahib Khan Korai	Dadloo	250	1500	137	54	7	198	4	27	31	19	12	31	39
136	Khairo Bullo	Dadloo	125	1200	74	15	3	92	3	16	20	5	1	6	17
137	Koro Khan Korai	Dadloo	65	750	42	30	3	75	4	40	44	12	1	13	8
138	Goth Milo Malik	Dadloo	15	200	14	6	3	23	13	26	39	8	5	13	38
139	Jani Mir Bahar	Dadloo	25	250	25	7	2	34	6	21	26	18	3	21	14
140	Moto Mir Bahar	Dadloo	20	140	31	7	1	39	3	18	21	16	1	17	6
141	Daim Goth	Dadloo	9	59	15	3	1	19	5	16	21	0	0	0	#DIV/0!
142	Goth Mahar Mir Bahar	Dadloo	7	45	6	1	1	8	13	13	25	0	0	0	#DIV/0!
143	Goth Jadoo Indhar	Dadloo	7	50	14	0	1	15	7	0	7	0	0	0	#DIV/0!
144	Goth Chanaisar Chachar	Dadloo	8	30	12	1	0	13	0	8	8	0	0	0	#DIV/0!
145	Mir muhammad dayo	Dadloo	50	250	17	7	6	30	20	23	43	6	6	12	50

S.No	Village Name	UC	House Hold	Total Population	Normal	MAM	SAM	total children screening	SAM %	MAM %	GAM %	normal PLW	PLW Mam	Total Screening	PLW %
146	Massoo Sanghi	Dadloo	60	450	49	25	15	89	17	28	45	6	2	8	25
147	Wali Dino	Dadloo	87	420	97	12	13	122	11	10	20	15	0	15	0
148	Jaro mirbahar	Dadloo	80	640	51	8	1	60	2	13	15	15	2	17	12
149	Haji goth	Dadloo	100	500	33	35	7	75	9	47	56	5	18	23	78
150	gulab Mir bahar	Dadloo	25	200	31	11	2	44	5	25	30	18	1	19	5
151	Noor muhammad	Dadloo	36	300	32	5	0	37	0	14	14	6	0	6	0
152	Suleman Kalhoro	Dadloo	30	200	35	10	0	45	0	22	22	3	0	3	0
153	Sahib Khan Korai	Dadloo	44	200	70	4	6	80	8	5	13	8	5	13	38
Grand Total			8193	56966	5105	1364	473	6964	7	20	26	1080	386	1466	26

Annex 11 Data set 235 HHs and 606 children

Data Analysis based on Approach of cleaning data to 235 HHs and 606 children

Before data validation HFA

	All n = 620	**Boys** n = 332	**Girls** n = 288
>-2Z Score	**111(18%)**	**50(15%)**	**61 (21%)**
Prevalence of stunting (<-2 z-score) less than two standard	(509) 82%	(282) 85%	(227) 79%
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(80) 13%	(38) 11%	(42) 15%
Prevalence of severe stunting (<-3 z-score)	(429) 69% of all children in random sample	(244) 73% of all children in random sample	(185) 64% of all children in random sample

After data validation HFA

	All n = 606	**Boys** n = 316	**Girls** n = 290
>-2Z Score	**111 (18)%**	**52 (16 %)**	**69 (24%)**
Prevalence of stunting (<=-2 z-score) less than or equal to -2 SD	495 (81%)	264(84%)	231(80%)
Prevalence of moderate stunting	86 (14%)	45 (14%)	41 (14%)
Prevalence of severe stunting (<-3 z-score)	409 (67%) of all children in random sample	219 (69%) of all children in random sample	(190) 66% of all children in random sample

Before WFH

	All	Boys	Girls
	n = 712	n = 362	n = 350
Prevalence of Global acute malnutrition (<-2 z-score)	**(291) 41%**	**(137) 38%**	**(154) 44%**
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score)	**(111) 16%**	**(45) 12%**	**(66) 18%**
Prevalence of severe acute malnutrition (<-3 z-score)	**(180) 25%**	**(92) 25%**	**(88) 25%**

After WFH

	All	Boys	Girls
	n = 606	n = 316	n = 290
Prevalence of Global acute malnutrition (<-2 z-score)	**275 (45%)**	**139 (44%)**	**136 (47%)**
Prevalence of moderate acute malnutrition (<-2 z-score and >=-3 z-score)	**102 (17%)**	**42 (13%)**	**60 (21%)**
Prevalence of severe acute malnutrition (<-3 z-score)	**173 (29%)**	**97 (31%)**	**76 (26%)**

Before data validation MUAC (n=762)

	All n = 762	**Boys** n **= 386**	**Girls** n **= 368**
Global Acute Malnutrition (<125 mm)	(191) 25%	(92) 24%	(99) 27%
Moderate Acute Malnutrition (≥115 mm and <125 mm)	(122) 16%	(62) 16%	(60) 16%
Severe Acute Malnutrition (<115 mm)	(69) 9%	(30) 8%	(39) 11%

After data validation MUAC (n=606)

Acute Malnutrition rates according to MUAC (n=606)

	All	**Boys**	**Girls**
	n = 606	**n = 315**	**n = 291**
Global Acute Malnutrition (<125 mm)	**141 (23%)**	**69 (22%)**	**72 (25%)**
Moderate Acute Malnutrition (≥115 mm and <125 mm)	**91 (15%)**	**46 (15%)**	**45(15%)**
Severe Acute Malnutrition (<115 mm)	**50 (8%)**	**23 (7%)**	**27 (9%)**

Rooms before data validation

	Number and %/homes with X rooms			
X	Owned	Rented	Living without rent	Total
1 Room	58 (83%)	2 (3%)	10 (14%)	70 (100%)
2 Rooms	67 (89%)	5 (7%)	3 (4%)	75 (100%)
3 Rooms	33 (87%)	4 (11%)	1 (3%)	38 (100%)
4 Rooms	17 (89%)	1 (5%)	1 (5%)	19 (100%)
5 and more rooms	15 (94%)	0 (0%)	1 (6%)	16 (100%)
Total	190 (87%)	12 (6%)	16 (7%)	218 (100%)

	Number and %/homes with X rooms			
X	Owned	Rented	Living without rent	Total
1 Room	46 (85%)	2 (4%)	6 (11%)	54(100%)
2 Rooms	62 (80%)	4 (6%)	3 (4%)	69 (100%)
3 Rooms	30 (88%)	4 (12%)	0	34 (100%)
4 Rooms	17 (89%)	1 (5%)	1 (5%)	19 (100%)
5 and more rooms	9 (90%)	0	1 (10%)	10 (100%)
Total	164 (88%)	11 (7%)	11 (7%)	186 (100%)

218 HHs	1room	2 rooms	3 rooms	4 rooms	5 rooms
Number of rooms in HH	**33%**	**34%**	**17%**	**9%**	**7%**

190 HHs	1room	2 rooms	3 rooms	4 rooms	5 rooms
Number of rooms in HH	**29%**	**37%**	**18%**	**10%**	**5%**

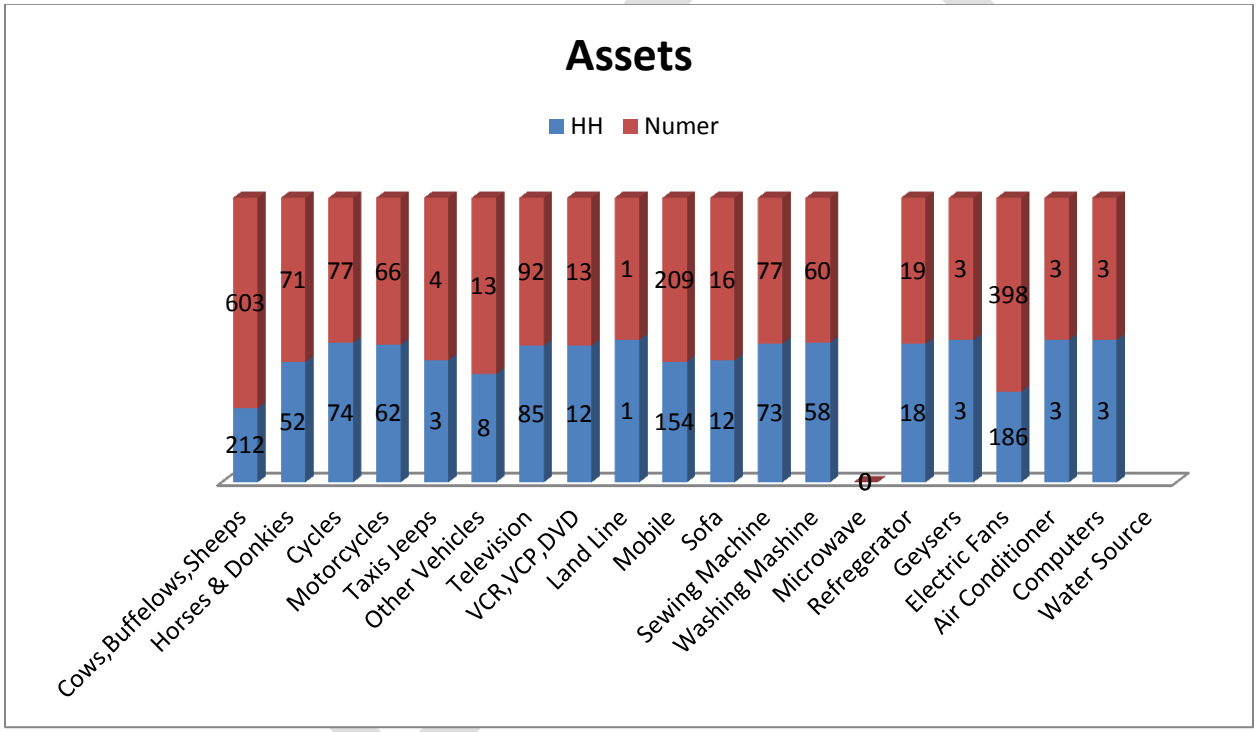
	Paved	Semi Paved	Unpaved
Walls	19%	35%	47%
Roof	17%	52%	30%
Floor	11%	12%	78%

	Fire wood	Gas/ Gas Cylinders 2 rooms	Kerosene oil	Animal dung	Other Fuel
Type of fuel used for cooking	**36%**	**3%**	**36%**	**2%**	**24%**

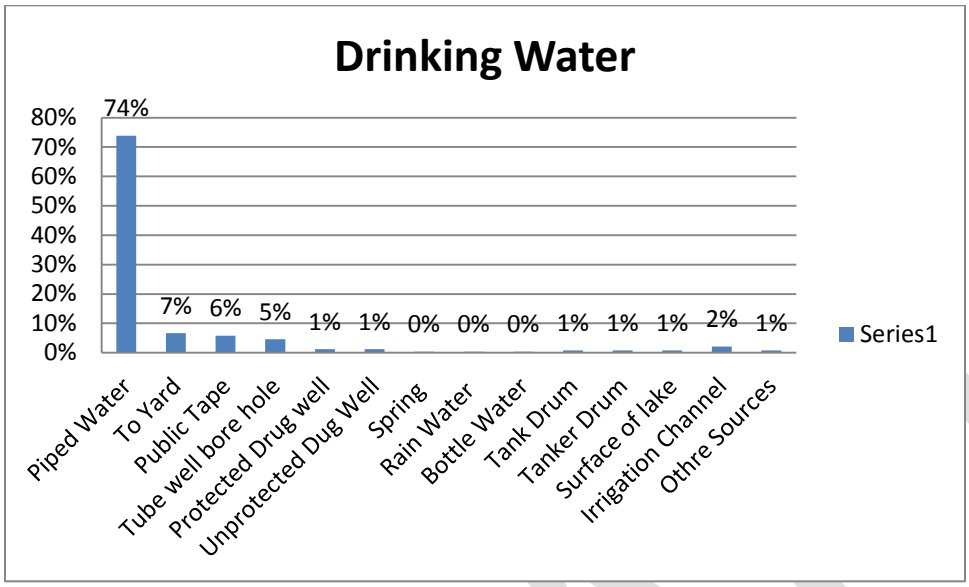
613 were answered

	Fire wood	Gas/ Gas Cylinders 2 rooms	Kerosene oil	Animal dung	Other Fuel
Type of fuel used for cooking	**206 (90%)**	**16 (7%)**	**--**	**8(3%)**	**--**

Assets Detail



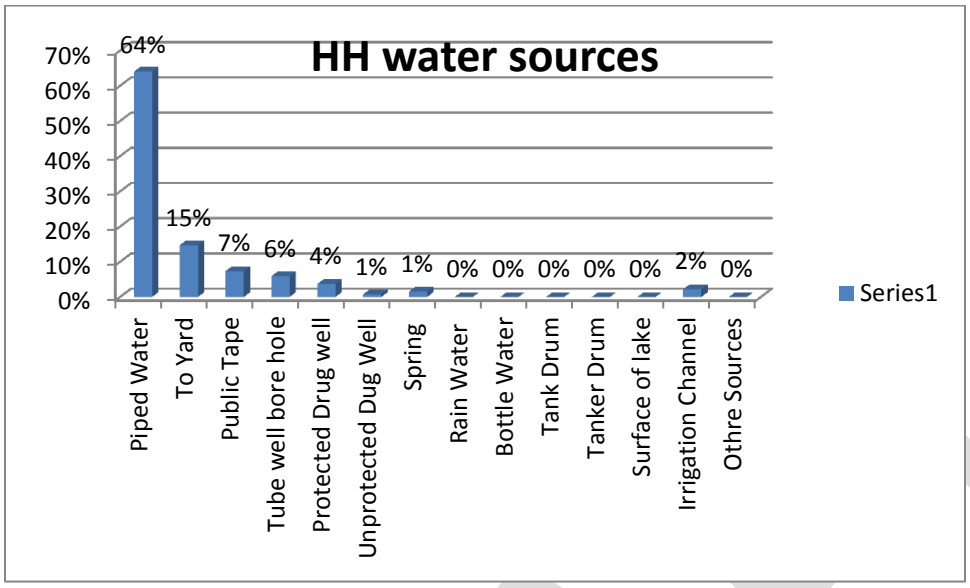
After Data Validation



After Data Validation

Treatment of Water		
Always	66	34%
Often	3	2%
Some times	26	13%
Never	98	51%

After data validation



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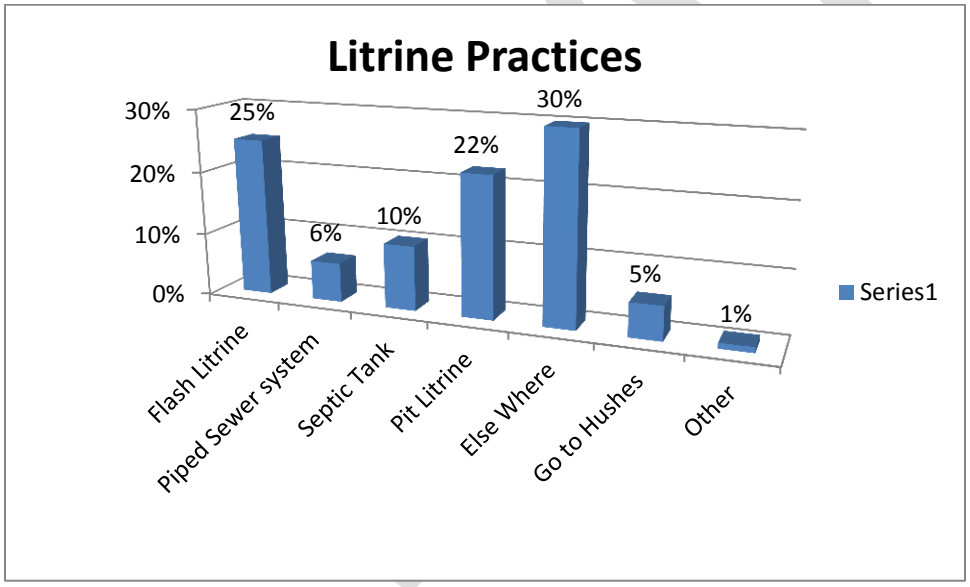


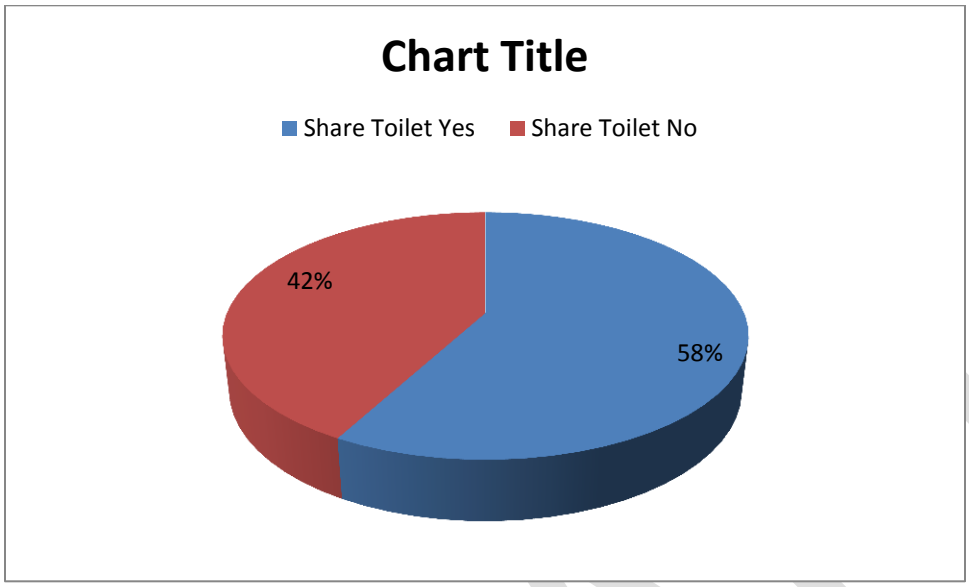
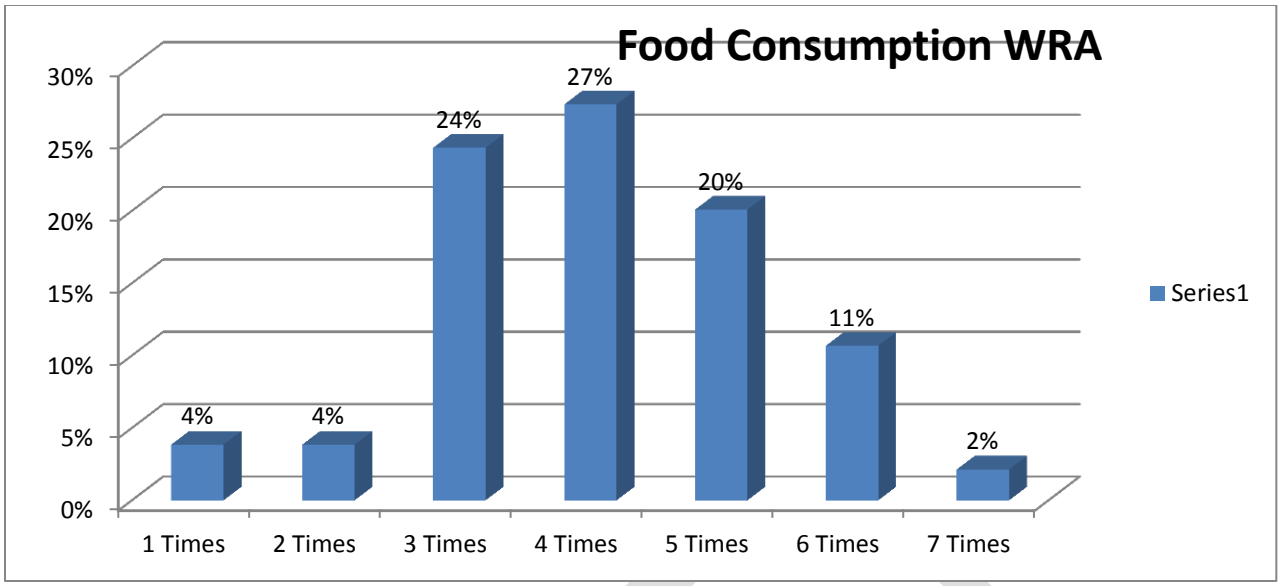
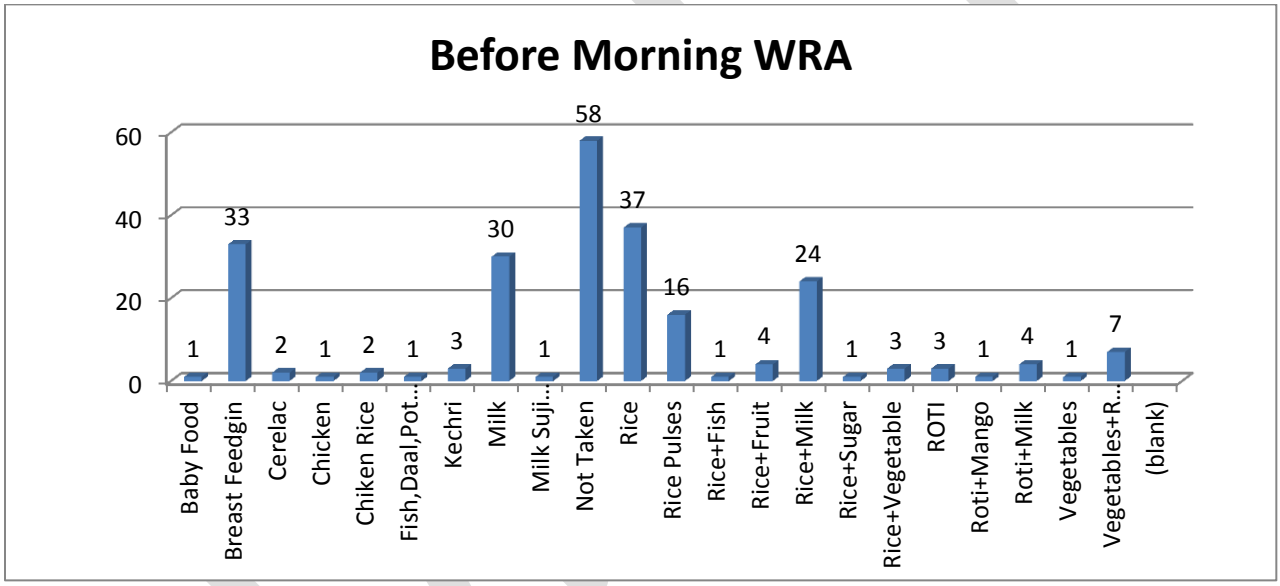
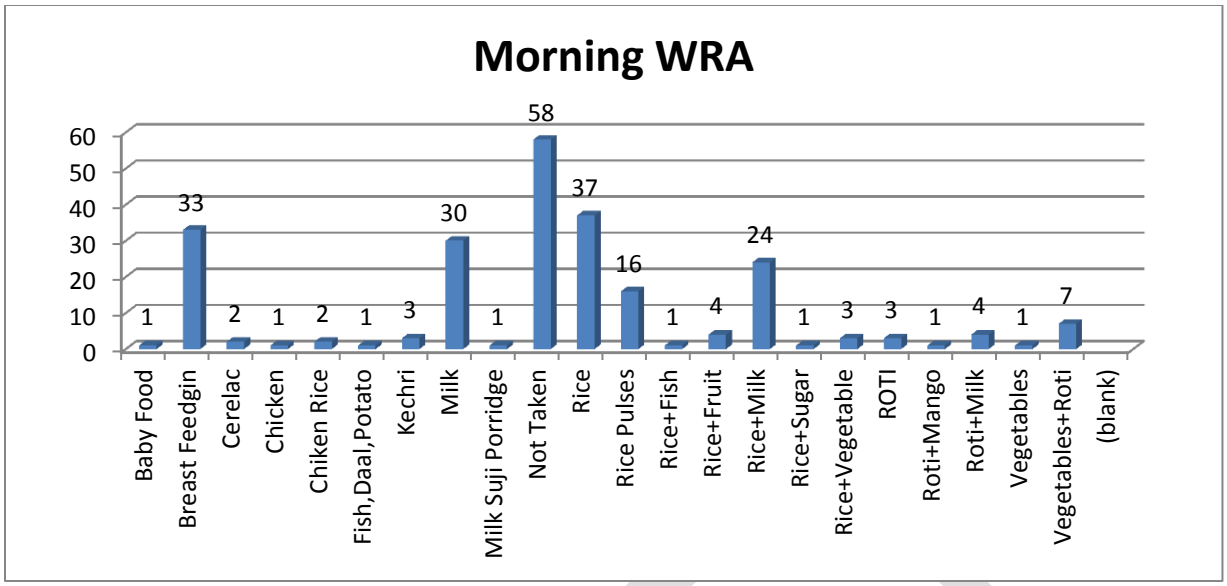


Chart Title
Share Toilet Yes
Share Toilet No
42%
58%


Hand washing practices
35%
30%
25%
20%
15%
10%
5%
0%
35%
2%
32%
2%
24%
5%
Defication Yes
Defication No
Wash Hand Yes
Wash Hand No
With Soap
No Soap
Series1


Food Consumption WRA
30%
25%
20%
15%
10%
5%
0%
4%
4%
24%
27%
20%
11%
2%
1 Times
2 Times
3 Times
4 Times
5 Times
6 Times
7 Times
Series1


Before Morning WRA
60
40
20
0
1
33
2
1
2
1
3
30
1
58
37
16
1
4
24
1
3
3
1
4
1
7
Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Pot...
Kechri
Milk
Milk Suji...
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+R...
(blank)


Morning WRA
60
50
40
30
20
10
0
1
33
2
1
2
1
3
30
1
58
37
16
1
4
24
1
3
3
1
4
1
7
Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
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Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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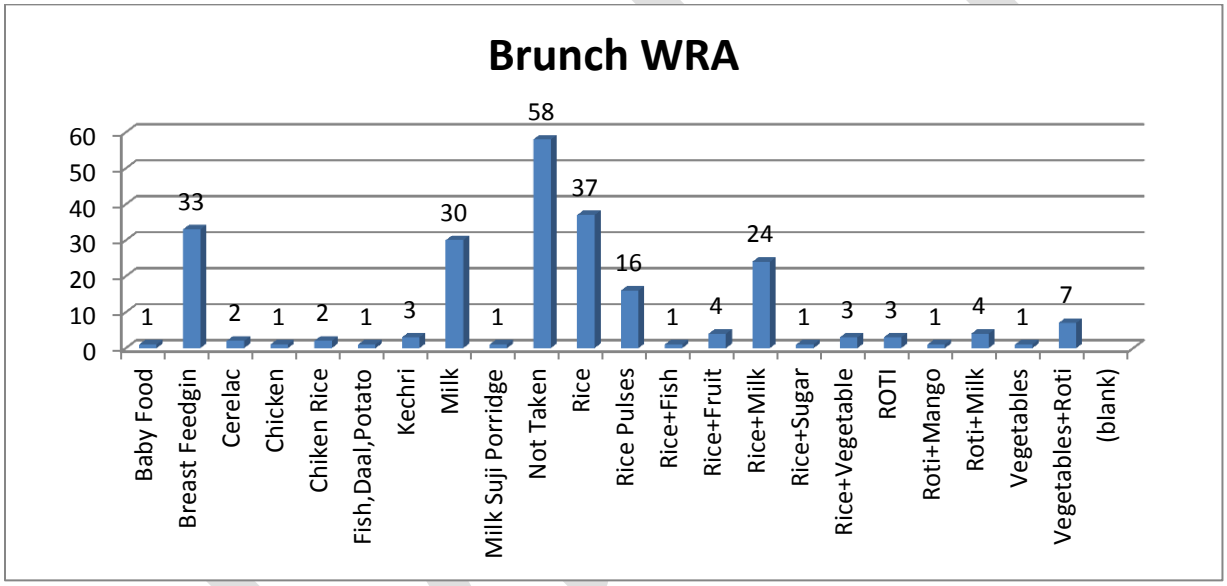
Brunch WRA
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
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Rice+Fruit
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Rice+Sugar
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Roti+Mango
Roti+Milk
Vegetables
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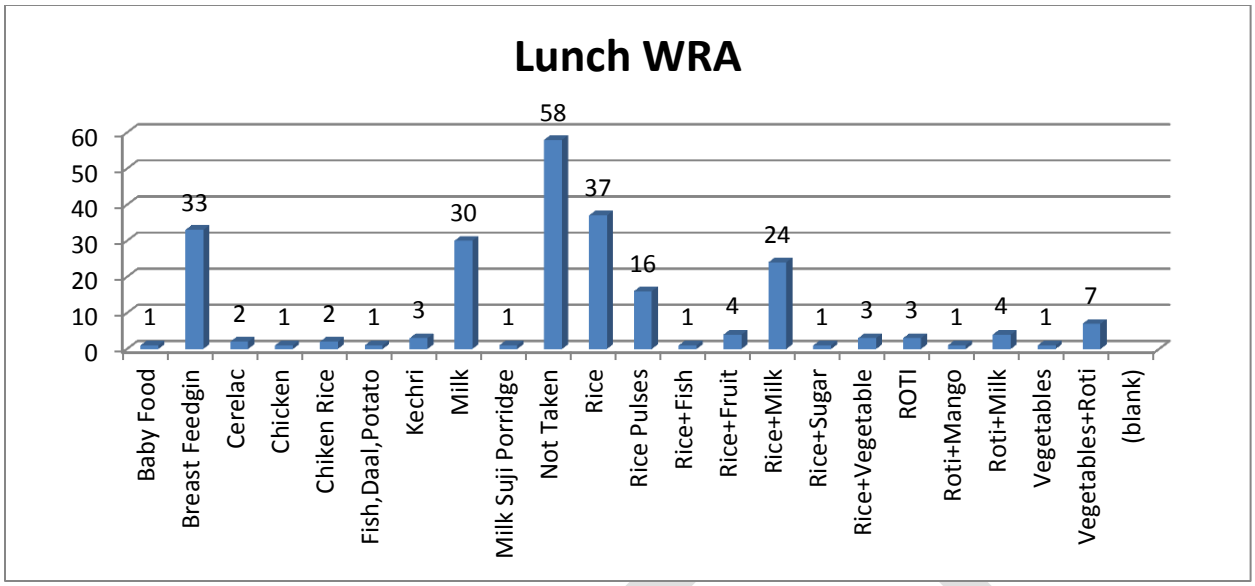
Lunch WRA
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
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Roti+Mango
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Vegetables
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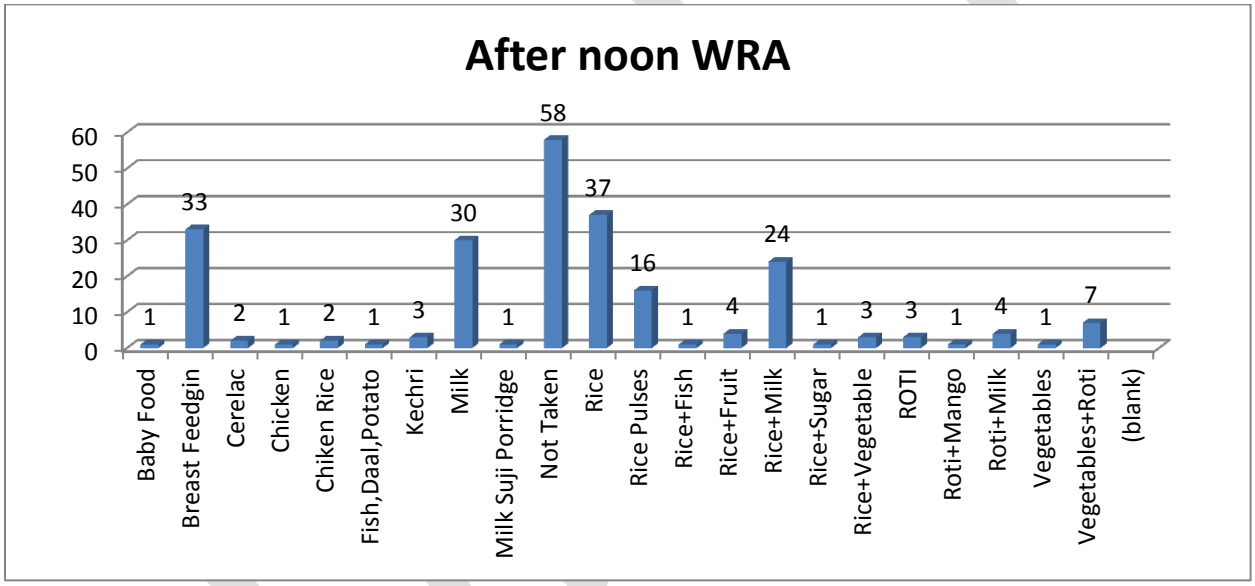
After noon WRA
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Baby Food
Breast Feedgin
Cerelac
Chicken
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Fish,Daal,Potato
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Milk
Milk Suji Porridge
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Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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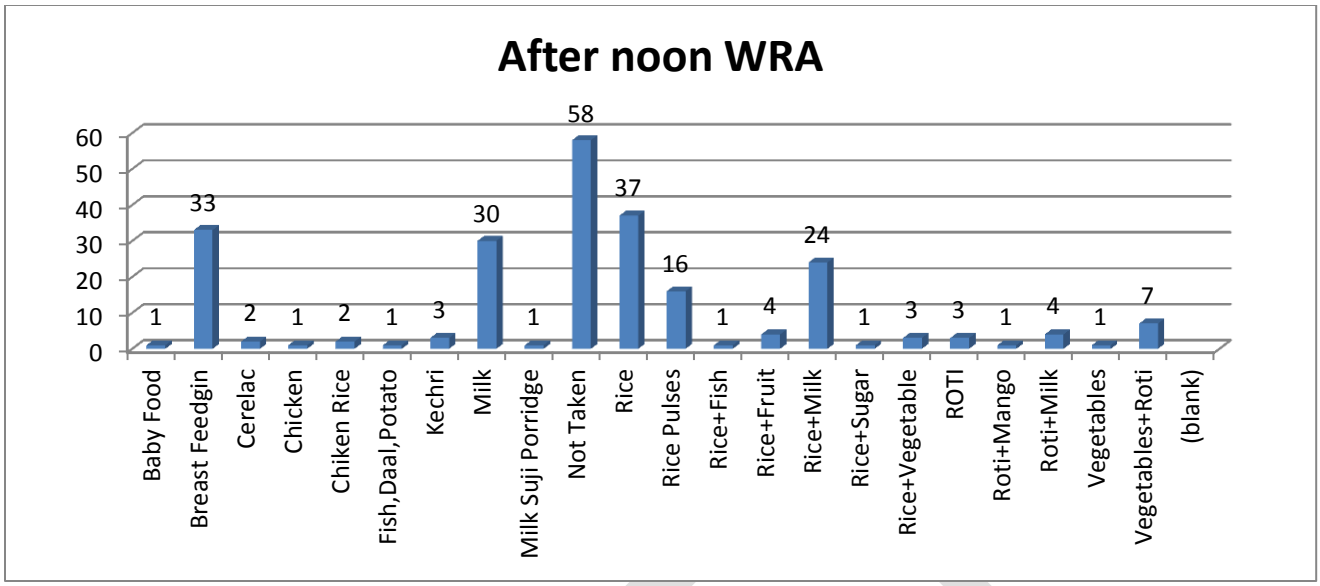
After noon WRA
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
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Rice+Sugar
Rice+Vegetable
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Roti+Mango
Roti+Milk
Vegetables
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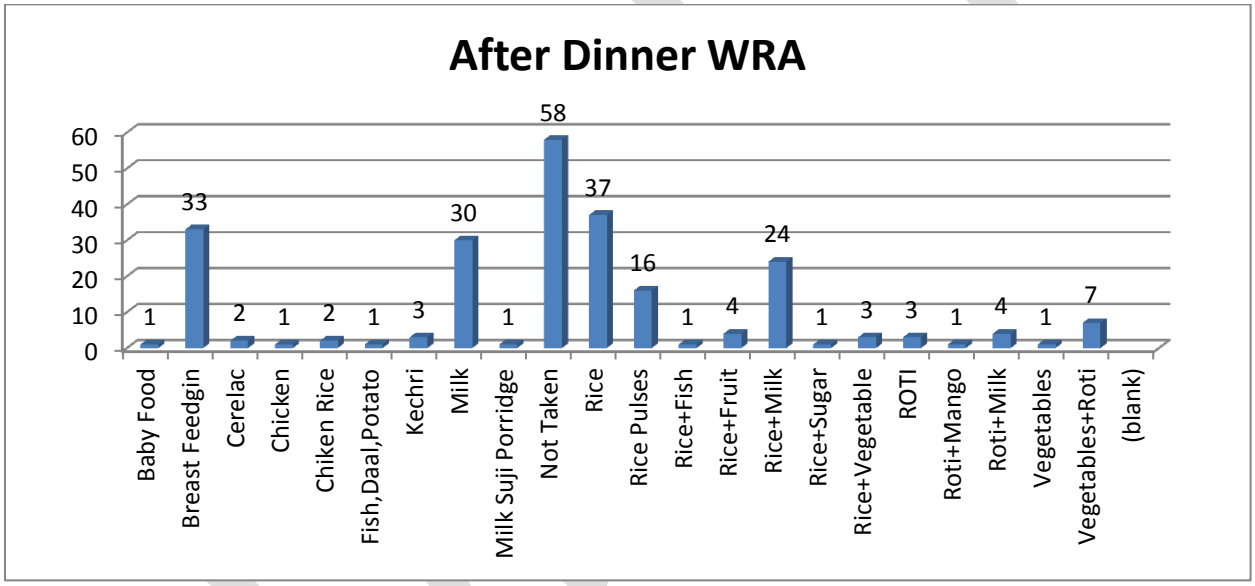
After Dinner WRA
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
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Rice
Rice Pulses
Rice+Fish
Rice+Fruit
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Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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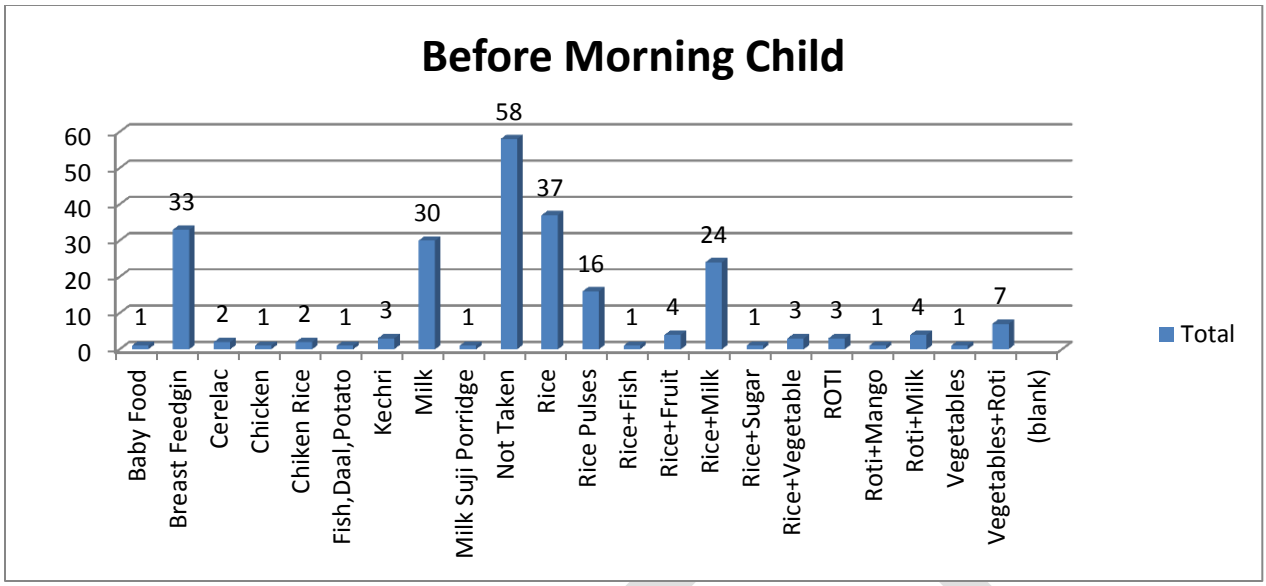
Before Morning Child
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7
Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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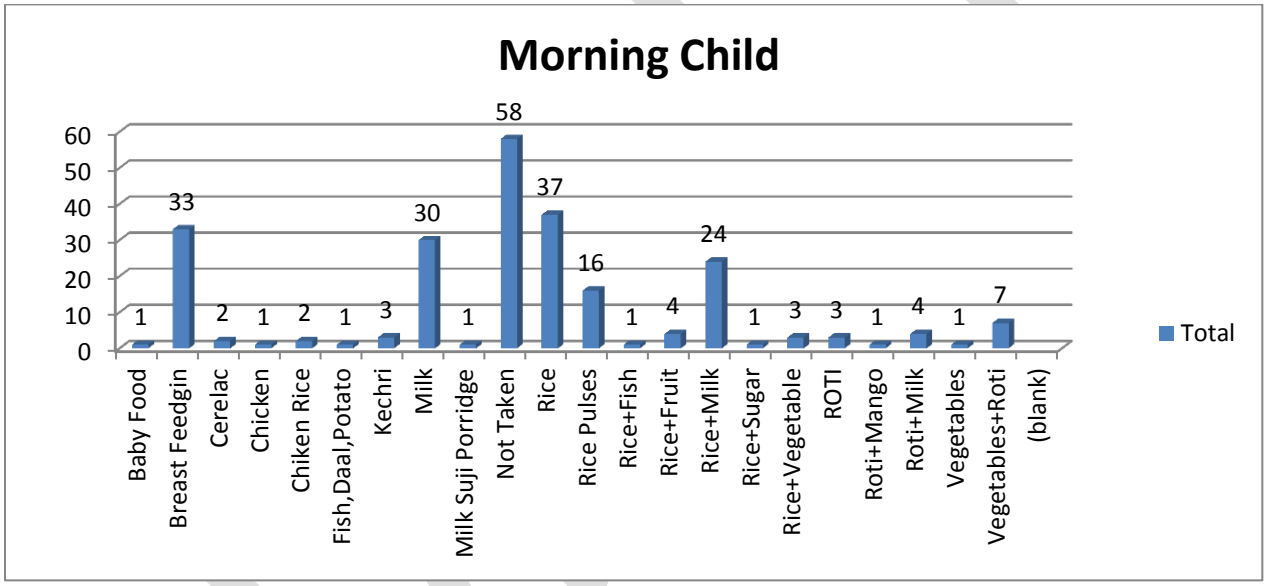
Total


Morning Child
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7
Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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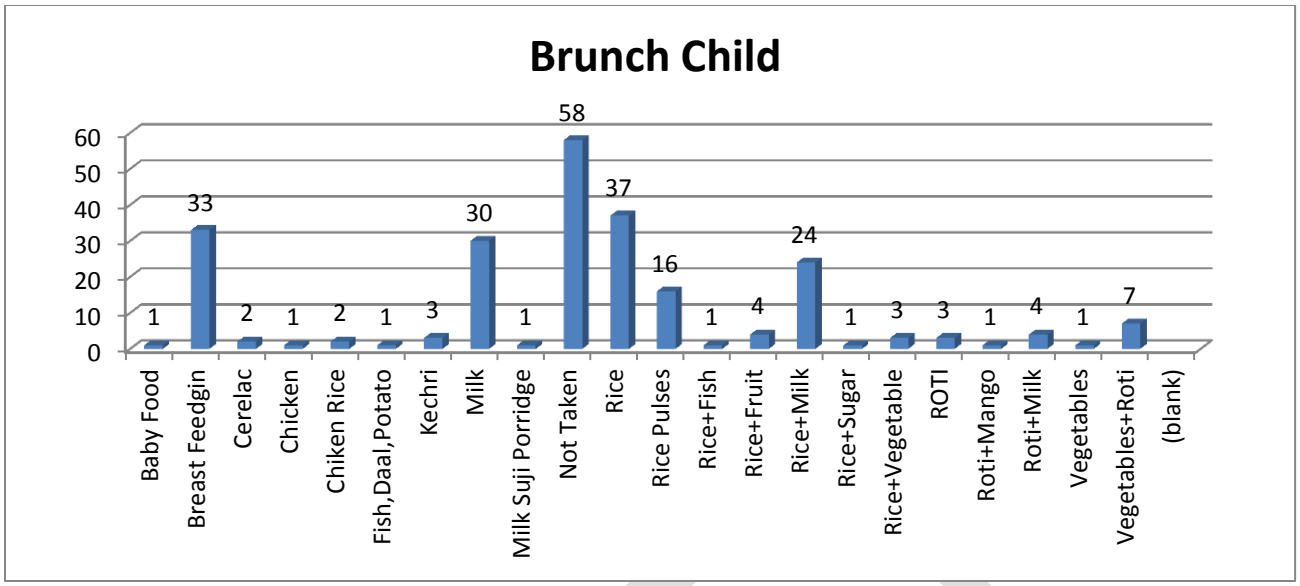
Total


Brunch Child
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Baby Food
Breast Feedgin
Cerelac
Chicken
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Fish,Daal,Potato
Kechri
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Milk Suji Porridge
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Rice
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Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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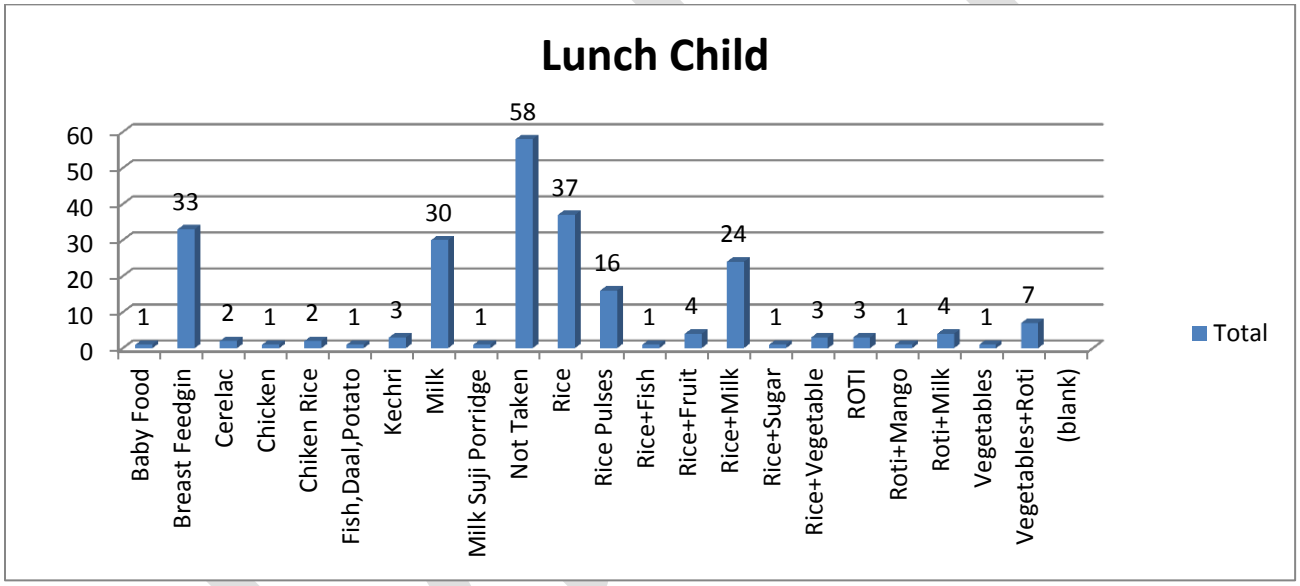
Lunch Child
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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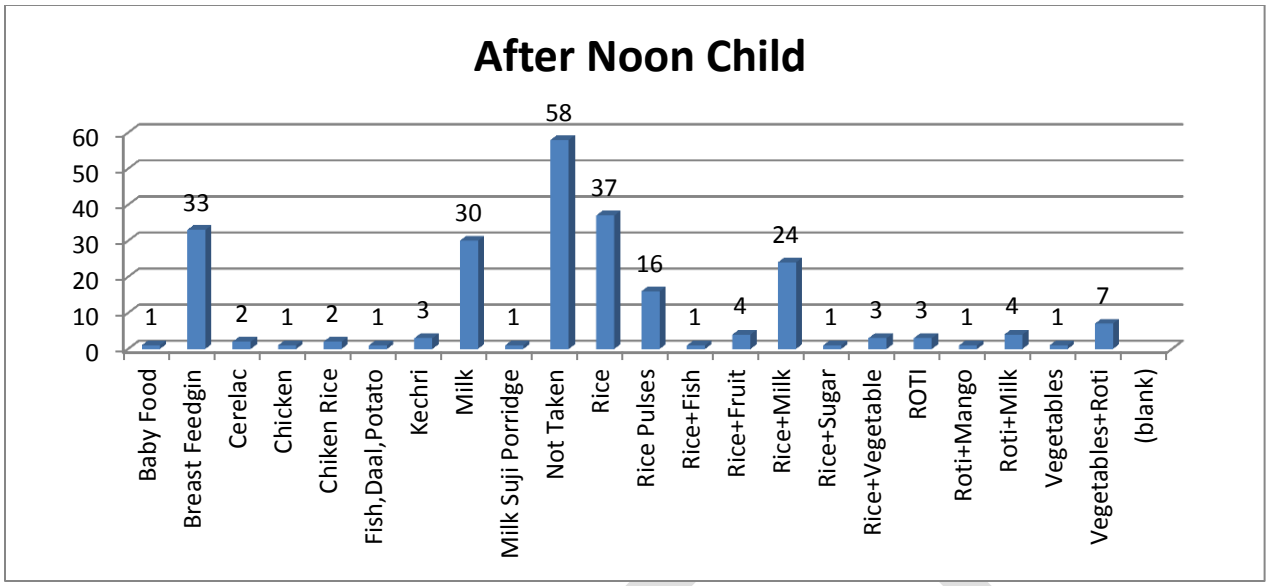
Total


After Noon Child
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
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Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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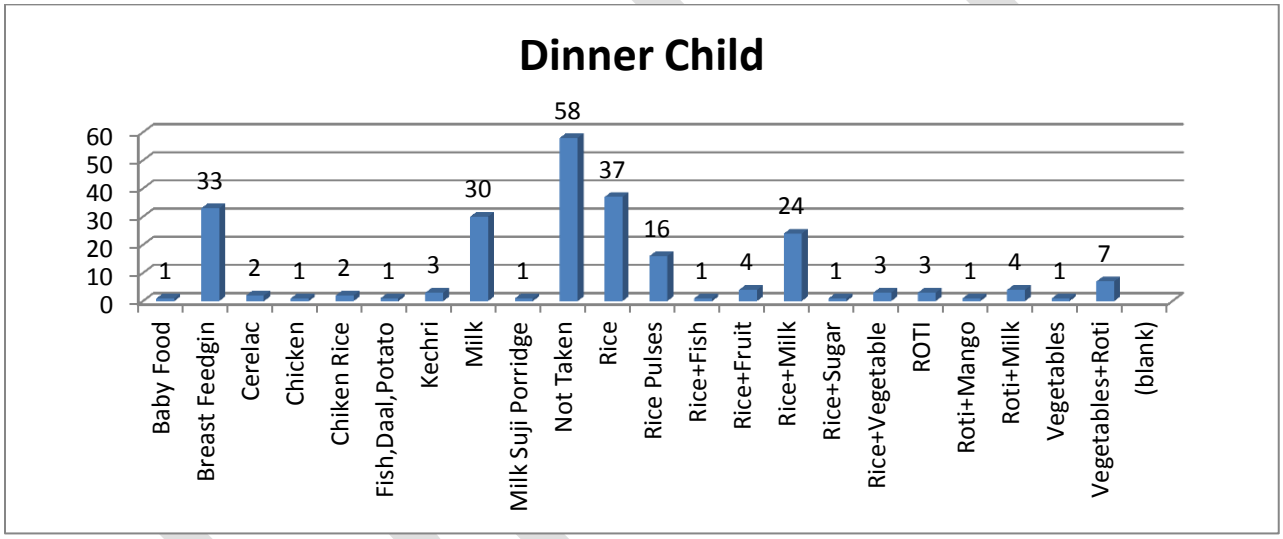
Dinner Child
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Baby Food
Breast Feedgin
Cerelac
Chicken
Chiken Rice
Fish,Daal,Potato
Kechri
Milk
Milk Suji Porridge
Not Taken
Rice
Rice Pulses
Rice+Fish
Rice+Fruit
Rice+Milk
Rice+Sugar
Rice+Vegetable
ROTI
Roti+Mango
Roti+Milk
Vegetables
Vegetables+Roti
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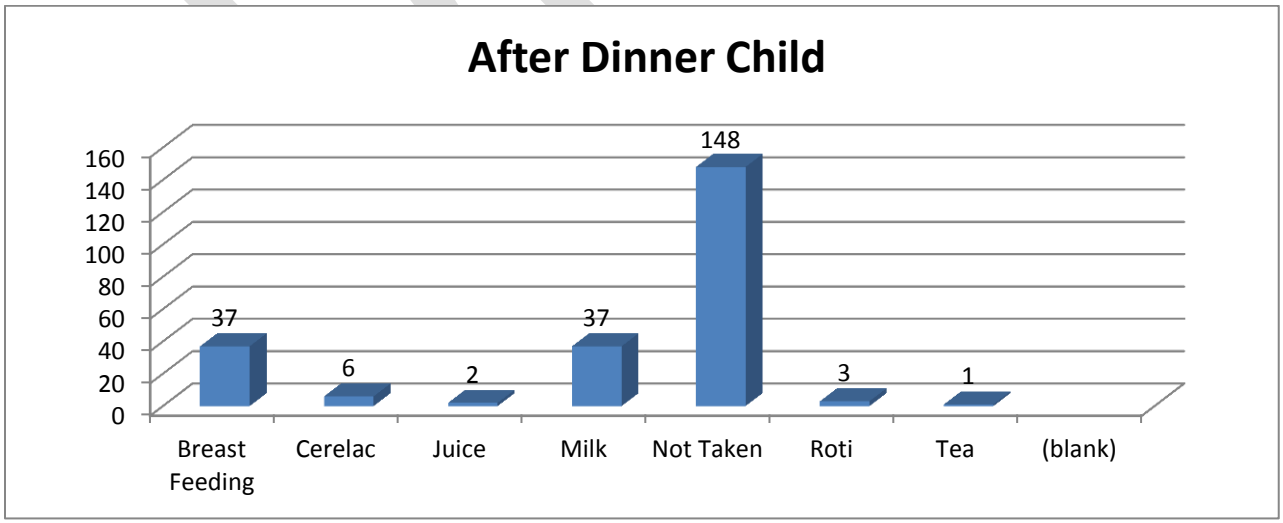
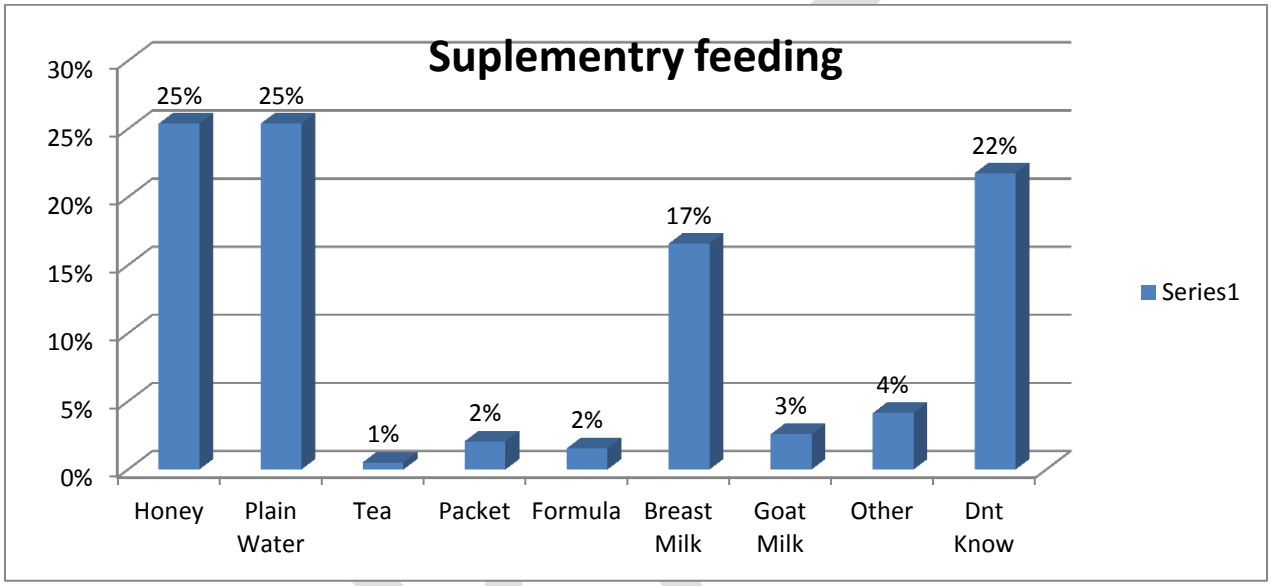
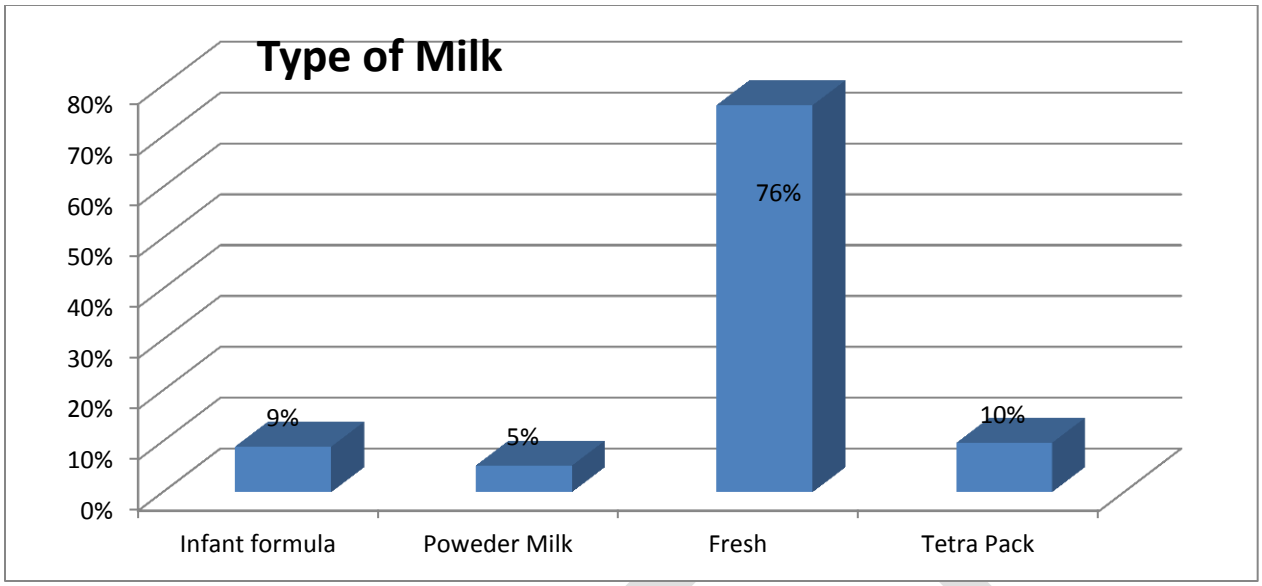

After Dinner Child
160
140
120
100
80
60
40
20
0
37
6
2
37
148
3
1
Breast Feeding
Cerelac
Juice
Milk
Not Taken
Roti
Tea
(blank)

	Yes	No	Do not Know
Thick Milk (colostrum) given to child immediately after birth	**79%**	**12%**	**9%**

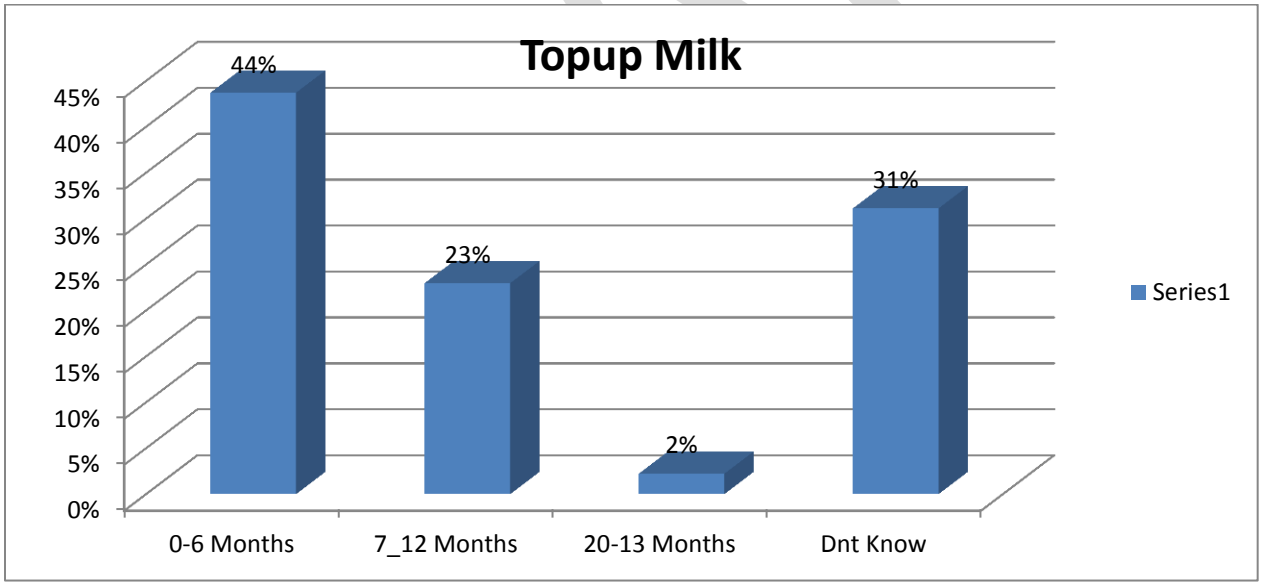
	Less than six months	6-12 months	12 months or more	Never did exclusively BF
Age until mothers breast feed their children exclusively	**43%**	**28%**	**15%**	**15%**

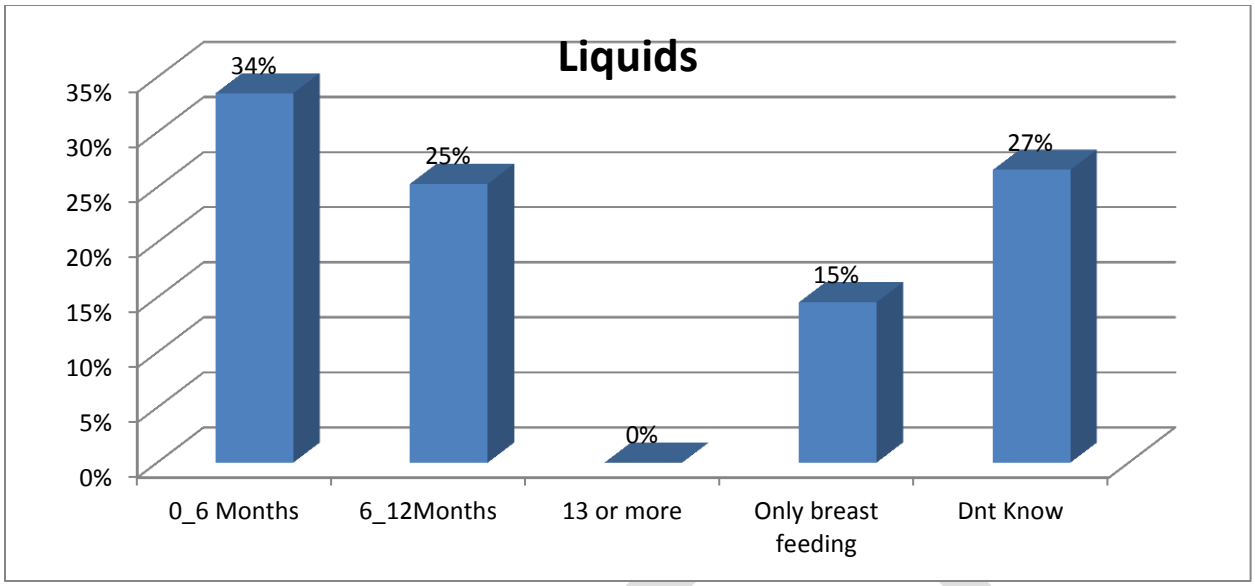


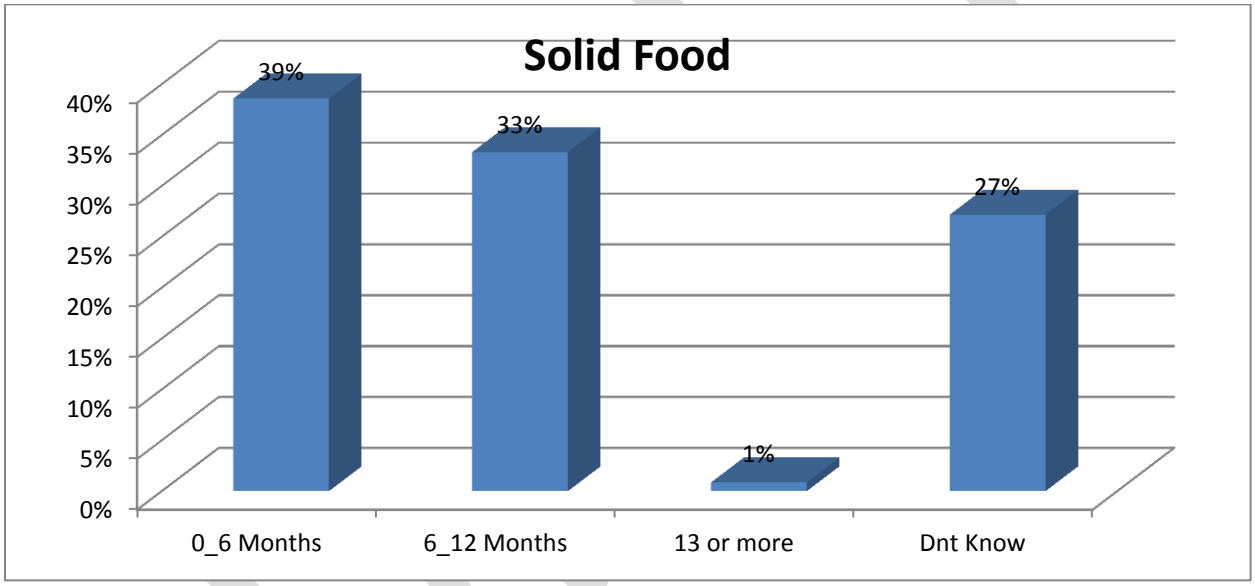
	Infant formula	Fresh milk	Powdered milk	Tetra pack
Type of top up milk given to the child	**9%**	**75%**	**5%**	**10%**



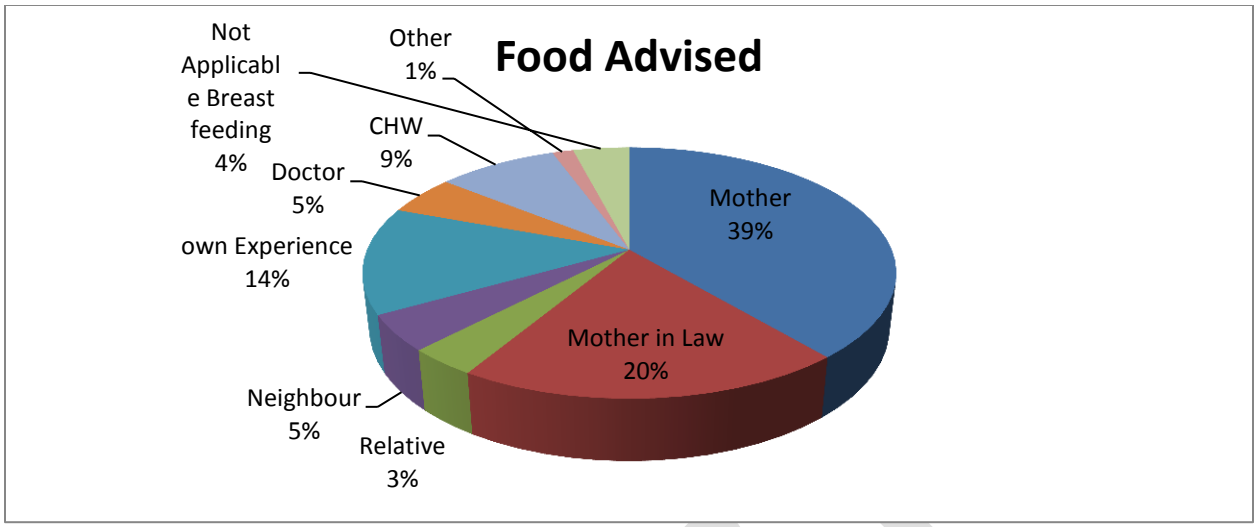
	0-6 month	6-12 months	More than 13months	Do not know
Age of child when top up milk was introduced	**44%**	**23%**	**2%**	**31%**



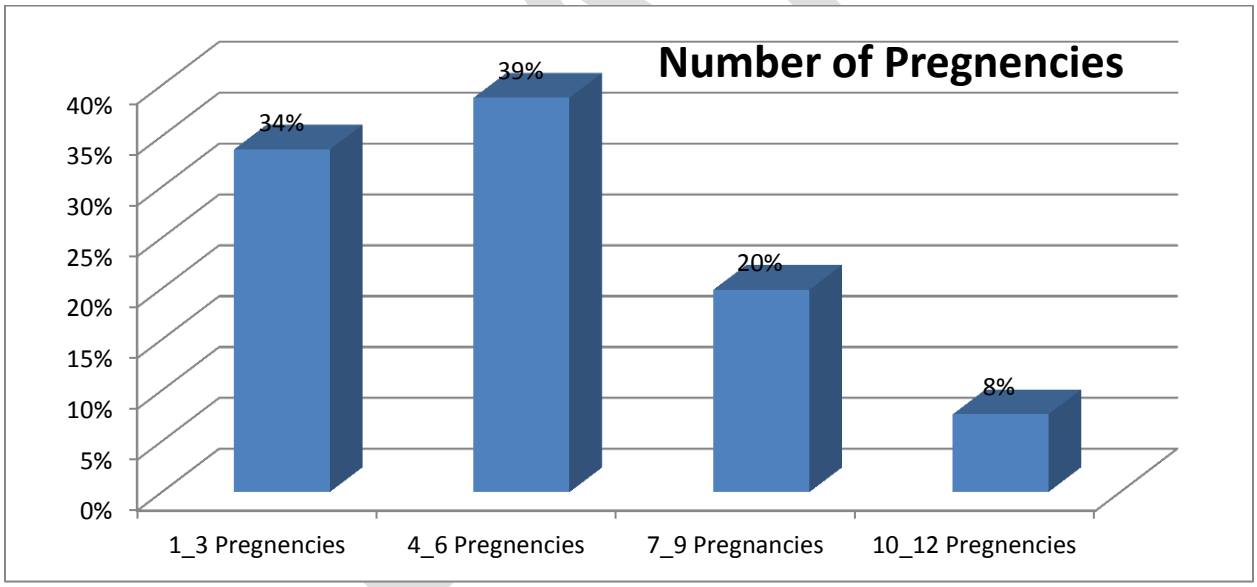




	0-6 month	6-12 months	More than 13months	Only BF	Do not Know
Age of child when other liquids (juices, tea etc.) were introduced	**34%**	**25%**	**0%**	**15%**	**27%**
Age of child when other semi solid foods were introduced	**39%**	**33%**	**1%**	**--**	**27%**



	always	sometimes	When time permits	never	N/A
Complementary food prepared separately	**15%**	**31%**	**12%**	**35%**	**8%**



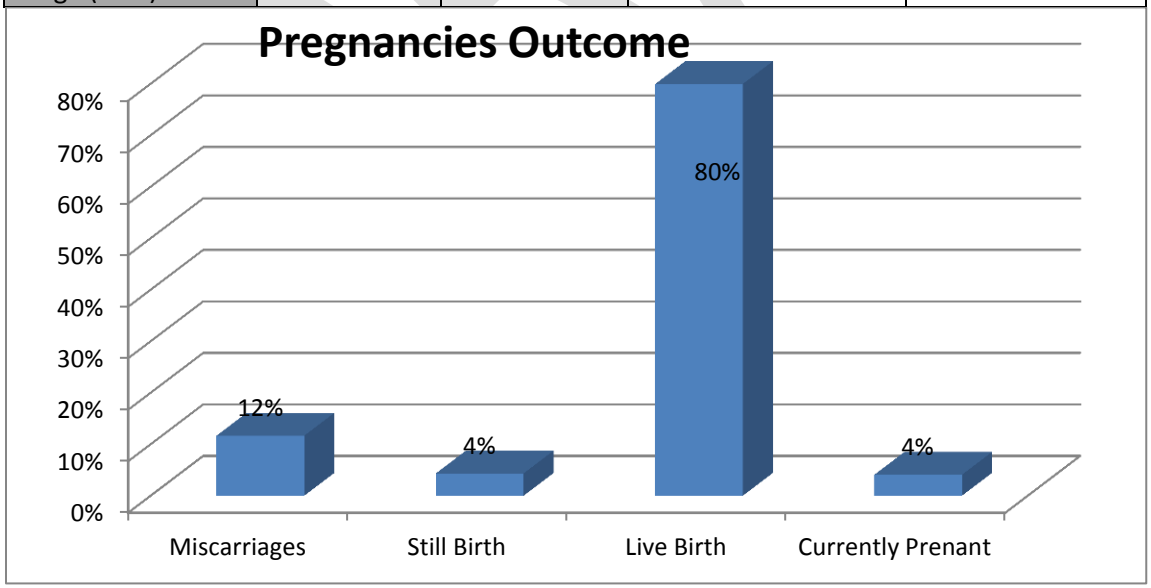
In 274 Sample

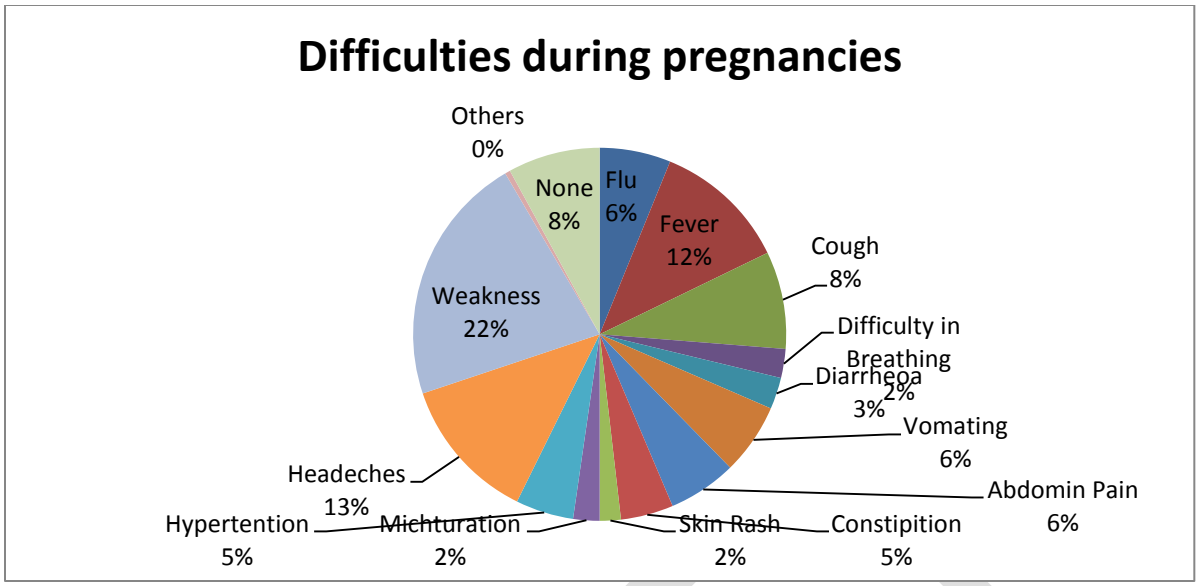
	Miscarriages	Still Birth	Live Birth	Currently Pregnant
Total	52	16	322	15
%age	13%	4%	80%	4%

In 235 Sample

	Women's experience of different pregnancy outcomes			
frequency of pregnancy outcome	**Miscarriages**	**Still Birth**	**Live Birth**	**Currently Pregnant**
1	7	8	8	14
2	7	4	14	
3	4		20	
4	2		5	
5 & more	2		28	
Total	22	12	75	14

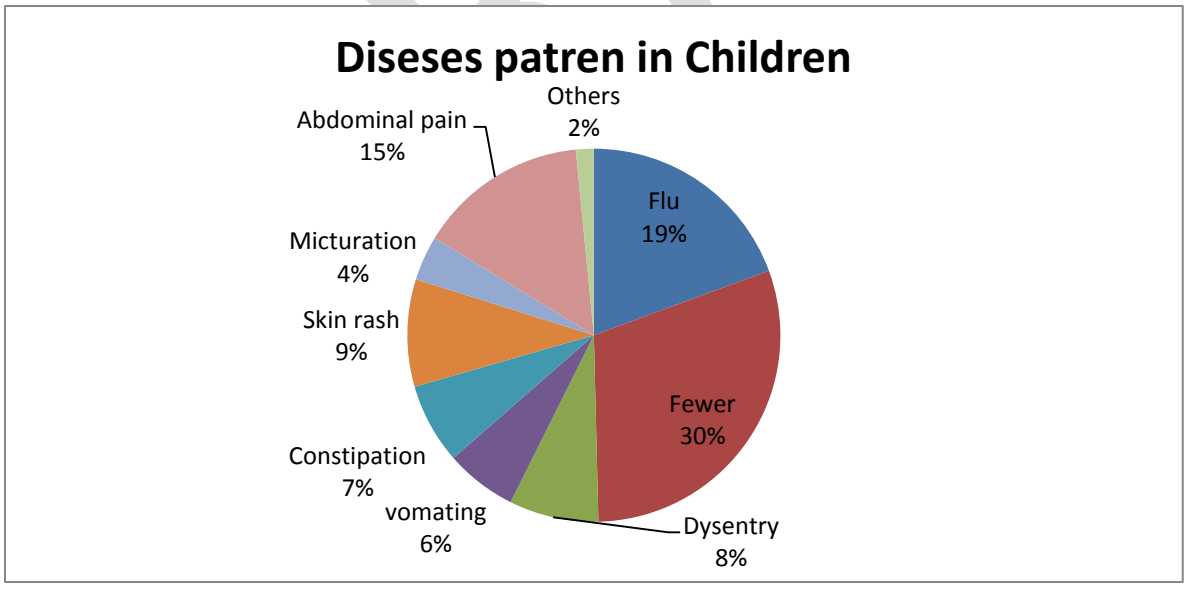
	# of different pregnancy outcomes reported from 235 Women			
	Miscarriages	Still Birth	Live Birth	Currently Pregnant
Total (273)	43	16	295	15
%age (100)	12%	4%	80%	4%



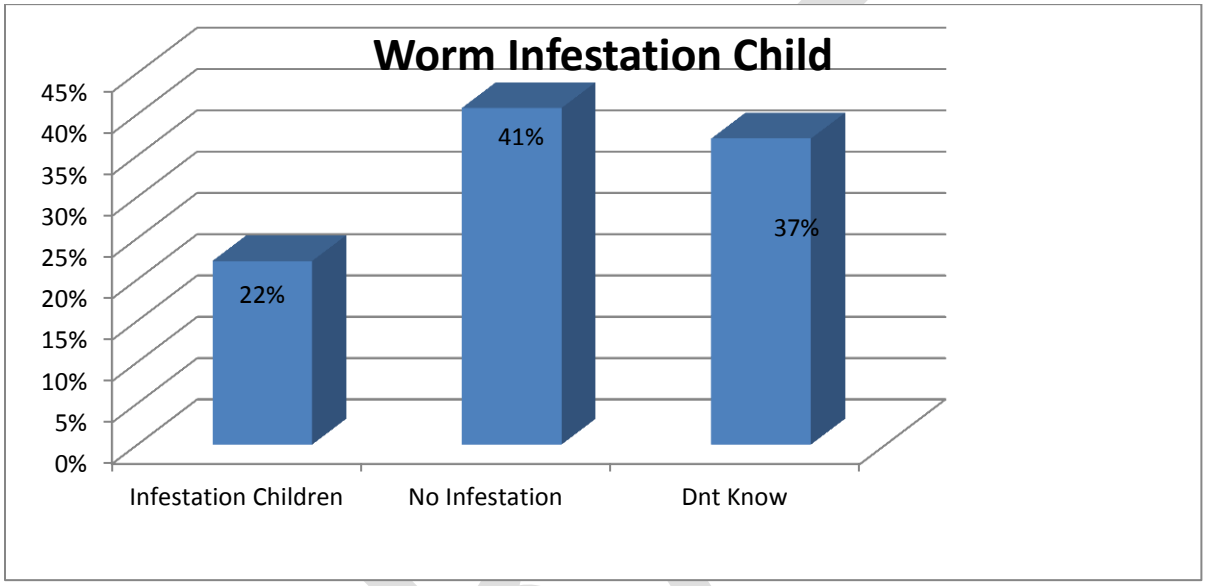


Worms Infestation	Yes	No	Not remember
Worm infestation diagnosis in last one year	**16%**	**46%**	**38%**
De-worming medicines taken in last one year	**20%**	**40%**	**40%**

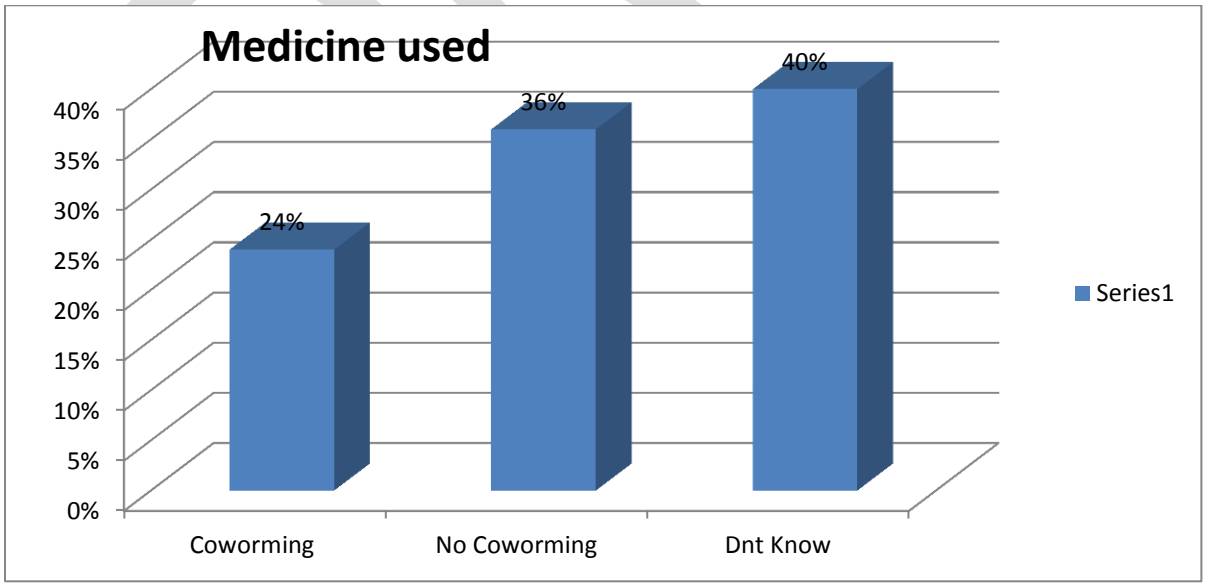
History of hospitalization	Yes	No	Not remember
Any history of hospitalization in last one year	**19%**	**48%**	**32%**



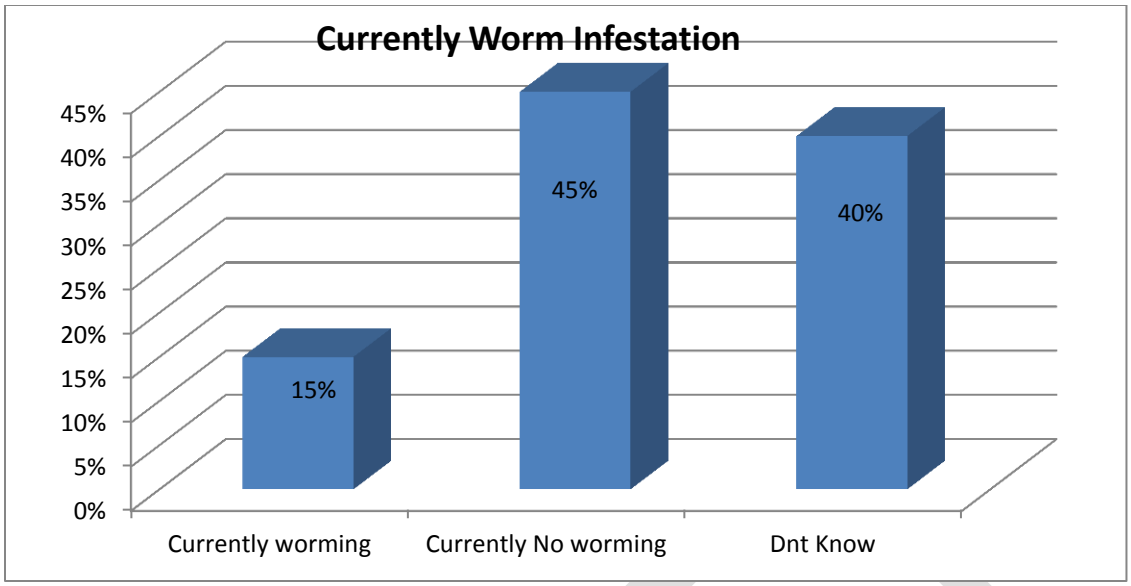
Worm infestation status and treatment	# women respondents (144)	Women's responses about their children		
		Yes	No	Do not know
Worms infestation diagnosed in last six months	**54**	**12**	**22**	**20**
Taking medicines for worm infestation	**50**	**12**	**18**	**20**
Currently having worms infestation	**40**	**6**	**18**	**16**



Medicine used for worm infestation



Currently worm infestation in children



	Yes	No	Do not know
Vaccination Card of Child	**68%**	**31%**	**1%**