Save the Children

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ENDLINE ASSESSMENT

KARUNA: IMPROVING NUTRITION SECURITY IN JHARKHAND AND UTTAR PRADESH

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Definitions and Acronyms

ASHA:	**Accredited Social Health Activists. Theyare community health workers instituted by the Government of India's Ministry of Health and Family Welfare (MOHFW) as part of the National Rural Health Mission (NRHM).**
ANM:	Auxiliary Nurse Midwife. The basic health care delivery system in India is implemented through the Primary Health Centers (PHC). Each PHC has a group of female health assistants called ANM (Auxiliary Nurse Midwife) associated to cover a population of 5000 by each of them. These ANMs are in direct contact with rural people in delivering health care.
AWW:	Anganwadi Worker. The word *Anganwad***i** means "courtyard shelter" in Indian languages. They were started by the Indian government in 1975 as part of the Integrated Child Development Services Programme to combat child hunger and malnutrition. The Anganwadi system is mainly managed by the Anganwadi Worker (AWW).
AWCs:	Anganwadi Centres. The Integrated Child Development Scheme of the Indian Government,(ICDS) Scheme represents one of the world's largest and most unique programmes for early childhood development and is run by Anganwadi Centres. A typical *Anganwadi Centre* also provides basic health care in Indian villages.
BCC:	Behavior Change Communication. It is a process of working with individuals, communities and societies to develop communication strategies to promote positive behaviors which are appropriate to their settings and provide a supportive environment which will enable people to initiate and sustain positive behaviors.
FLW:	Front Line Workers. They have been referred in this study, to mean the healthcare personnel at the grassroots level, who are the contacts for first line treatment at the rural levels and include the ASHA, ANM and the AWW.
HHs:	House Holds. The basic unit of research analysis in many social, microeconomic studies and government models.
ICDS:	Integrated Child Development Services. The scheme was conceived in 1975 with an integrated delivery package of early childhood services. The Integrated Child Development Services Programme aims at providing services to pre-school children in an integrated manner so as to ensure proper growth and development of children in rural, tribal and slum areas. ICDS is a centrally sponsored scheme. Today this programme reaches out to 8.06 million expectant and nursing mothers and 39.35 million children under 6 years of age.
IMR :	Infant mortality rate. Defined as is the number of deaths of children less than one year of age per 1000 live births.
MDG:	Millennium Development Goals. The Millennium Development Goals (MDGs) are eight international development goals that were enunciated, following the Millennium Summit of the United Nations in 2000 and following the adoption of the United Nations Millennium Declaration.
OBC:	Other Backward Classes. It is a collective term used by the Government of India to classify castes which are educationally and socially disadvantaged. It is one of several official classifications of the population of India, along with Scheduled Castes and Scheduled Tribes (SCs and STs).

PHC:	Primary Health Centers. These are the units of rural healthcare run by the Indian Government. Primary health centers and their sub-centers are supposed to meet the health care needs of rural population. Each primary health centre covers a population of 1, 00,000 and is spread over about 100 villages. A Medical Officer, Block Extension Educator, one female Health Assistant, a compounder, a driver and laboratory technician look after the PHC. It is equipped with a jeep and necessary facilities to carry out small surgeries.
PPS:	Probability Proportional to Sampling. A sampling method which includes a number of sample selection methods in which the probability of selection for a sampling unit is directly proportional to a size measure
PRI:	Panchayati Raj Institutions. These are institutions of rural local self-governance at the village and block levels, which have been envisaged as the ultimate units of direct governance, entrusted with basic services and community welfare programmes, as per the 73rd. Amendment of the Indian Constitution.
PSU:	Primary Sampling Unit. In sample surveys, primary sampling unit arises in samples in which population elements are grouped into aggregates and the aggregates become units in sample selection. The aggregates are, due to their intended usage, called "sampling units." Primary sampling unit refers to sampling units that are selected in the first stage of a multi-stage sample.
RMP:	Registered Medical Practitioner. It refers to the medical practitioners, who are licensed to practice medicine by some statutory or regulatory body.
SC/BR:	Save The Children/Bal Rakshak
SC:	Scheduled Castes. The “Scheduled Castes” is the Constitutional name collectively given to the groups which have traditionally occupied the lowest status in traditional Indian society. Today, untouchability is outlawed, and these groups are recognized by the Indian Constitution to be especially disadvantaged because of their past history of inferior treatment, and are therefore entitled to affirmative treatment and action.
ST:	Scheduled Tribes. The term Scheduled Tribes first appeared in the Constitution of India. The criterion followed for specification of a community, as scheduled tribes are indications of primitive traits, distinctive culture, geographical isolation, shyness of contact with the community at large, and backwardness. This criterion is not spelt out in the Constitution but has become well established.
SDW:	Safe Drinking Water. Safe drinking water is water with microbial, chemical and physical characteristics that meet WHO guidelines or national standards on drinking water quality and is safe for human consumption. It is essential for preventing may water borne and communicable diseases.
Jharkhand:	Jharkhand, a state of India.
UP:	Uttar Pradesh, a state of India.
VHND:	Village Health Nutrition Day, It is part of the National Rural Health Mission and is organized once every at the Health Centre, in the village. VHND is also to be seen as a platform for interfacing between the community and the health system. On the appointed day, ASHAs, AWWs, and other will mobilize the villagers, especially women and children, to assemble at the nearest AWC.
WASH:	Water, Sanitation and Hygiene. WASH interventions typically include efforts at promoting community hygiene and sanitation through targeted interventions, access to clean drinking water and clean toilets.
Gumla Sadar:	Studied project block in Gumla district, Jharkhand.

Pindra:	Studied project block in Varanasi district, U.P.
Malnutrition:	Malnutrition refers to a situation where there is imbalanced diet in which some nutrients are either in excess, lacking or in the wrong proportion. Simply put, we can categorise it as under-nutrition and over-nutrition. However, as the current study deals with only the under-nutrition aspect of malnutrition, the discussions will mostly centre on under-nutrition.
Kutcha house:	Kutcha house means a house that is built from natural ingredients like mud, bamboo, cow dung etc.
Semi-pukka house:	A semi-pukka house means a house that has the floor, roof or walls or any two of these made of bricks or concrete.
Pukka house	A pukka house means a house that is built completely from concrete or bricks.
Primary occupation:	Primary occupation means the occupation from which the maximum revenue is earned.
Chief revenue earner:	Chief revenue earner means the person who contributes the maximum proportion of the household income.
Agriculture:	Agriculture means those who possess their own farm land and derive revenue by practicing agriculture in it. Although doing agriculture is also a form of business, it has been kept separate in order to treat it as a unique entity.
Labour:	Labour means either agricultural labour or any other labour.
Self employed:	Self employed means professionals like lawyers, doctors, skilled workers etc.
Occupation:	Occupation means involvement in any income generating activities Voluntary services are not included here.
All kinds of ANC check ups:	All kinds of ANC check ups mean at least three ANC check ups done, received one TT injection and consumed 100 FA tablets according to DLHS standards.
Government health facilities:	Government health facilities are PHCs, CHCs, district or state hospitals, village health centres etc.
Fully immunized:	Fully immunized means a child who has received three Polio, three DPT, one BCG, one measles vaccine and one dose of Vitamin A.
Housewife:	Housewife means a woman who is not involved in any income generating activity and is only engaged in managing the household.
Improved source of drinking water:	Improved source of drinking water is piped drinking water in DLHS-2, which includes tap (inside residence/ yard/ plot) or shared/ public tap or hand pump/ bore well, and/ or a covered well. In DLHS-3, it includes drinking water piped into dwelling, piped to yard/ plot, public tap/ standpipe/ hand pump/ tube well/ bore well/ covered well/ spring tanker, cart with small tank and bottled water. The DLHS-3 standard has been used here.
Improved sanitation facility:	Improved sanitation facility is not shared flush/ pour flush to piped sewer system, septic tank, or pit latrine, pit latrine with slab.
BMO:	Block medical officer
CDPO:	Child development project officer
APL:	Above poverty line means those people who are earning more than the cut-off set by GOI.
BPL:	Below poverty line means those people who are earning less than the cut-off set by GOI.
CMAM:	Community Management of Acute Malnutrition

DPT:	DPT is a combined vaccine for Diptheria, Pertussis, Tetanus.
IYCF:	Infant young child feeding practices is a set of practice which should be follow by mother of child below 24 months.
GOI:	Government of India
JSK:	Jansankhya Sthirata Kosh a fund setup by GOI to promote schemes and practices to stabilize population in some of the most populous states.
JSSK:	Janani Shishu Suraksha Yojana a national initiative to make available better health facilities for women and child.

Executive Summary

About the Project

The state of Uttar Pradesh and Jharkhand, being one of the most nutritionally vulnerable states, has substantially high levels of undernourished women and children. Improvement in nutritional status is important for healthy and productive life as well as for continued economic growth and development. The poor nutritional status captured the attention of policy makers and the situation required an intervention to arrest the rising levels of malnourishment and associate rates of mortality among children.

Save the Children, Bal Raksha, Bharat (SC/ BR) launched Project Karuna in the states of Jharkhand and Uttar Pradesh with the goal of contributing to the reduction in child under-nutrition in India by 50% by 2015 (in line with the Millennium Development Goal 1). Project Karuna aims to generate evidence across India to advocate for policy and programmatic changes at the Government level to address child under-nutrition, especially SAM, in areas with the highest malnutrition rates. Specific objective was to contribute to improved nutrition security in the specified project areas of Jharkhand and Uttar Pradesh by providing the following specific inputs by:

- Facilitating convergent action and coordinated implementation of the Leadership Agenda for Action by Government departments,
- Strengthening and making the ICDS more effective through inclusion of a Community based Management of Acute Malnutrition (CMAM) approach for outpatient treatment of SAM using RUTF, and
- Improving IYCF practices

Study Design

A quasi experimental design using mixed-methods approach, in line with the baseline study, was adopted in the end line assessment as well. The baseline evaluation, was performed to benchmark the key indicators and establish basis for assessment of impact on completion of the project through an end line evaluation. The baseline evaluation was conducted at the inception of the project phase i.e. in year 2013 to support benchmarking of key performance indicators by gauging in-depth analysis of the situation in the project area (Gumla sadar block in Gumla district and Pindra block in Varanasi District). The end-line study was conducted in 2016 to provide in-depth analyses of the situation in the operational area to assess the impact of the project and changes in key performance indicators. The specific objectives of the end line study were:

1. To assess nutritional status of the project area population (Children 0-59 months) along with key indicators to assess the program performance.
2. To compare end line findings with baseline and highlighting the results.
3. To document good practices and identify the areas for improvement.

The data was collected from mothers with children less than 6 years of age, pregnant women and anthropometric measurements were taken from children. In the baseline, a total of 2129 respondents for children age less than 6 years and 291 pregnant women were surveyed in Project and Comparison areas in both the States.

Socio Economic Characteristics

Majority of the respondents in the project and comparison areas were Hindus followed by Muslim, Christian and others. Caste wise distribution of respondents varied in Pindra, UP and Gumla, Jharkhand. In Pindra majority of the respondents were from Other Backward Category whereas in Gumla, majority of respondents were from Scheduled Tribe category during both baseline and end line study. Data from Pindra, UP and Gumla, Jharkhand shows a considerable increase in percentage of literate respondents i.e pregnant women and mothers of children below 6 years of age from baseline to end line both in project and comparison areas. Similar trend was observed in data of mothers with more than 10 years of schooling. Majority of respondents reported primary occupation in UP as Labour whereas in Jharkhand major primary occupations were Labour and Agriculture. Women associated with SHG were found to be increased in end line in Jharkhand. The percentage of respondents married before legal age has decreased across the project and comparison areas in both the states. Mean age at marriage has increased in project and comparison areas across both the states, higher increase was observed in Uttar Pradesh than Jharkhand.

Key Findings – Pindra block, Varanasi (Uttar Pradesh)

Food Security: Food security is one of the important elements building in the malnutrition free society. On being asked regarding food availability in the project area during end line, 12.2% HHs reported being worried about food supplies in the last 30 days in project area which has decreased from 13.4% reported in baseline. Just opposite was observed in comparison area where it increased by 2.3%.

Water, Sanitation and Hygiene: Status of indicators pertaining to WASH in study area during end line, the number of HHs having improved source of drinking water has increased by 3.2% in project area and by 3.5% in comparison area from baseline.

The number of HHs with improved sanitation facilities have improved in end line in project (15.6%) and comparison (6%) areas compared to baseline.

Pregnancy and Antenatal care: A series of questions to capture various aspects of ante-natal care were asked from the pregnant women and with mothers having children less than six months.

For pregnant women value of registered pregnancy has increased from baseline (P:78.6%, C:71.7%) in both project (80.8%) and comparison (73.3%) in end line. While, for mother having children less than six months has increased from baseline (P:88.7%, C:83.1%) however, the change in comparison (91.5%) is more than project (92.8%) area.

Similarly, for pregnant women value of ever receiving ANC services has increased from baseline (P:63%, 48.9%) in both project (79.5%) and comparison (62.7%). While, for mother having children less than six months has increased from baseline (P:75.7%, C:55.1%) however, the change in comparison (97.1%) is more than project (83.1%) area.

Childcare and Infant and Young Child Feeding practices:

Proper delivery mechanism, improvement has taken place in all indicators of proper delivery mechanism in end line as compared to baseline for project area. Also, for comparison area, meagre increment has taken place. However, values for indicators like “gave KMC” has found to be lower than baseline.

Breastfeeding practices, almost all the mothers of children between 0-23 months in project (98.6%) and comparison (98.6%) area reported ever breastfeeding value in end line, it has changed by meagre percentage from baseline (P:97.9%, C:99.3%).

Exclusive breastfeeding has increased from baseline (P:37.2%, C:34.8%) in project (45.94%) area while, it has decreased for comparison (33.17%).

Started breastfeeding within one hour has increased from baseline (P:56.9%, 55.4%) for project (65.6%) area while, it has decreased for comparison (53.4%) area.

Complementary feeding, the transition from breastfeeding to family food happen, after the age of 6 months referred as complementary feeding. typically covers the period from 6 to 18-24 months of age. During end line 46.4% children were given clear broth/ rice water/ soup during last 24 hours as compared to baseline where only 33.4% children were given clear broth/ rice water/ soup during last 24 hours in project area.

Child health and vaccination: Vaccination coverage of children aged 12-23 months has been recorded either from vaccination card or by asking the mothers in case the card was not shown.

The number of incidences of diseases has reduced from baseline (P:60.5%, C: 51.2%) for project (59.1%) area while it has increased for comparison (59%) area.

The diarrheal incidences in last three months has decreased from baseline (P:25.8%, C:31.8%) for both project (18.5%) and comparison (28.1%) area.

The percentages of fully immunized cases have increased from baseline (P:22.1%, C:17.3%) for both project (49.6%) and comparison (39.5%).

Village Health and Nutrition Day: The village health and nutrition day is an effective platform for providing primary health care services for millions of people in rural areas.

The awareness about term VHND has increased from baseline (P:9.5%, C:4.6%) in both project (64.2%) as well as comparison (55.4%).

Various services offered by VHND such as child immunization (BL [P:58.5%, C:28.9%], EL [P:59.5%, C:60%]), take home ration (BL [P:10%, 18.4%], EL [P:39.3%, C:22.6%]) etc. has increased from baseline for both project and comparison area.

Malnutrition Status: Percentage of underweight children has decreased from baseline (P:46.6%, C:47%) for both project (39.2%) and comparison (41.8%).

Similarly, percentage of stunted children has decreased from baseline (P:50%, C:54.6%) for both project (41.1%) and comparison (47.7).

The percentage of wasted children has decreased from baseline (P:29.1%, 20.6%) for both project (25.8%) and comparison (19.7%).

The percentage of SAM cases has decreased from baseline (P:2.1%, C:1.7%) for project (0.6%) while, increased for comparison (2%).

Key Findings of end line survey – Gumla Sadar block, Gumla (Jharkhand)

Food security: Food security is one of the important elements building in the malnutrition free society. On being asked regarding food availability in the project area during end line, 21.2% HHs reported being worried about food supplies in the last 30 days in project block which has increased from baseline (9.6%). Similar trend observed in comparison area (EL:28.4, BL:17.9).

Water, Sanitation and Hygiene: Status of indicators pertaining to WASH in study area during endline, the number of HHs having improved source of drinking water has increased from baseline (P:66.8%, C:64.6%) in both project (81.8%) and comparison (73.4%).

The number of HHs with improved sanitation facilities have improved in endline (P: 15.6%, C: 8.8%) compared to baseline (P: 6.4%, C: 2.5%) in both areas.

Pregnancy and Antenatal care: A series of questions to capture various aspects of ante-natal care were asked from the pregnant women and with mothers having children less than six months.

For pregnant women value of registered pregnancy has increased from baseline (P:90.2%, C:89.1%) in project (91.4%) while decreased a little in comparison (89%). While, for mother having children less than six months has increased from baseline (P:97%, C:97.4%). The change in project (100%) is more than comparison (98.7%) area.

Similarly, for pregnant women value of ever receiving ANC services has increased from baseline (P:82.9%, 86.9%) in project (95.7%) while decreased in comparison (86.3%). Similarly, for mother having children less than six months has increased from baseline (P:87.9%, C:91.1%) however, the change in project (97.3%) is more than comparison (93.7%) area.

Childcare and Infant and Young Child Feeding practices:

Proper delivery mechanism, improvement has taken place in all indicators of proper delivery mechanism in end line as compared to baseline for project area. Also, for comparison area, meagre increment has taken place. However, values for indicators like “gave KMC” has found to be lower than baseline.

Breastfeeding practices, almost all the mothers of children between 0-23 months in project (99.7%) and comparison (99.7%) area reported ever breastfeeding value in end line, it has changed by meagre from baseline (P:99.4%, C:100%).

Exclusive breastfeeding has increased from baseline (P:65.8%, C:67.2%) in project (68.8%) area while, it has decreased for comparison (67.1%).

Started breastfeeding within one hour has increased from baseline (P:69%, C:68.5%) for both project (82.5%) area as well as comparison (78.1%) area.

Child health and vaccination: Vaccination coverage of children aged 12-23 months has been recorded either from vaccination card or by asking the mothers in case the card was not shown.

The number of incidences of diseases has reduced from baseline (P:41.4%, C:44.6%) for project (40.6%) area while it has increased for comparison (45.7%) area.

The diarrheal incidences in last three months has increased from baseline (P:5.5%, C:8%) for both project (9.9%) and comparison (14.5%) area.

The percentages of fully immunized cases have increased from baseline (P:18.4%, C:15.3%) for both project (44.7%) and comparison (29.7%).

Village Health and Nutrition Day: The village health and nutrition day is an effective platform for providing primary health care services for millions of people in rural areas.

The awareness about term VHND has increased from baseline (P:18%, C:12.9%) in both project (83.1%) as well as comparison (72.4%).

Various services offered by VHND such as pregnancy registration (BL [P:60%, C:64.1%], EL [P:66.5%, C:62%]) child immunization (BL [P:49.6%, C:34.5%], EL [P:58.4%, C:56.2%]), take home ration (BL [P:48.7%, 72.8%], EL [P:56.6%, C:48.5%]) etc. has increased from baseline for both project while value has decreased for pregnancy registration and THR for comparison area.

Malnutrition Status: Percentage of underweight children has decreased from baseline (P:39.9%, C:46.1%) for both project (36.3%) and comparison (45.1%).

Similarly, percentage of stunted children has decreased from baseline (P:50.5%, C:48.7%) for both project (45.6%) and comparison (46.6).

The percentage of wasted children has decreased from baseline (P:22.3%, 30.2%) for both project (18.7%) and comparison (29%).

The percentage of SAM cases has decreased from baseline (P:2.8%, C:2%) for project (0.8%) while remained same for comparison (2%).

1 Background

1.1 Status of Malnutrition in India

Malnutrition among children is one of the biggest health problem in India. Also, India ranked high on underweight children in the world. National Family Health Survey (NFHS) 3[1] highlighted that nearly every second young child in India was undernourished (42.5% of children under 5 years were underweight); seven out of ten children were anaemic; every third woman was undernourished (35.6% with low Body Mass Index) and every second woman (15-49 years) was anaemic (55.3%). There is also variation in inter State malnutrition prevalence. Bihar (45%), Chhattisgarh (43%), Madhya Pradesh (42%), Odisha (41%) and Uttar Pradesh are the States with highest proportion of undernourished women and children.

In chronically undernourished women, pregnancy and lactation have an adverse effect on maternal nutritional status. Low pre pregnancy weight and low pregnancy weight gain are associated with low birth weight and all its attendant adverse consequences. The intergenerational cycle of undernutrition is therefore perpetuated with a high incidence of babies born with low weight (22%, NFHS-3), more susceptible to infections, more likely to experience growth failure, reflected in high levels of child undernutrition and anaemia. Growth and developmental potential is undermined by low birth weight and the sharp increase in undernutrition seen in this period, with levelling off in the third year. Around two thirds of malnutrition related deaths are related to inappropriate caring and Infant and Young Child Feeding (IYCF) practices, and occur in the first year of life (WHO)[2]. According to Hungama 2011[3] report in 100 focus district (including 41 districts of Uttar Pradesh) malnutrition prevalence rates were high. As per findings of the report, 58.8% of children were moderate or severely stunted, 42.3% were moderately or severely underweight and 11.5% were moderately or severely wasted. In Gumla 20% of children below 5 years of age were severely underweight, 20% were severely stunted and 20% were severely wasted. According to Rapid Survey on Children (2013-14)[4] report malnutrition prevalence has reduced from previously conducted surveys. In U.P, 30.3% of children below 60 months' age were severely stunted, 3% of children in same category were severely wasted and 13.7% of children in same category were severely underweight. These rates are still high and efforts are needed to accelerate reduction of malnutrition and achieve Sustainable Development Goals.

Table 1: AHS-Clinical Anthropometric and Biochemical (CAB) 2014[5]

Indicators	Uttar Pradesh		Varanasi		Jharkhand		Gumla	
Nutritional status below 5 years	Total	Rural	Total	Rural	Total	Rural	Total	Rural
Below -3 SD Wasting (Weight for Height) (%)	5.8	5.8	2.6	-	8.8	9.4	18.4	18.5
Below -3SD Stunting (Height for Age) (%)	35.6	35.7	27.2	28.3	28.5	30.9	29.4	30.4
Below -3 SD Underweight (Weight for Age) (%)	17.7	17.3	13.8	13.4	18.3	20.2	26.7	28.3
Below -3 SD Undernourished (BMI for Age) (%)	6.7	6.7	3.3	-	12.4	13.7	28.2	28.7

[1] National Family Health Survey (NFHS 3), 2005-06, Ministry of Health & Family Welfare, International Institute of Population Sciences, Mumbai.

[2] World Health Organization, UNICEF, Global Strategy WHO for Infant, Young Child Feeding, 2003

[3] HUNgaMA survey report, 2011, Nandi Foundation

[4] Rapid Survey on Children, 2013-2014, Ministry of Women and Child Development (GOI)

[5] Annual Health Survey (CAB), 2014, Ministry of Health & Family Welfare.

Data from AHS present Severe Acute Malnutrition (SAM), stunted, underweight and undernourishment prevalence in state of Uttar Pradesh and Jharkhand and in project districts i.e. Varanasi and Gumla. It is evident that Jharkhand has higher percentage SAM compared to U.P. However, prevalence of malnutrition in children below 5 years of age is also high in U.P. Similarly, Gumla district has very high percentage of SAM cases compared to Varanasi. These figures are highlighting the need of interventions focussing on improving malnutrition in these areas.

The global evidence was reviewed subsequently through the LANCET Series on Maternal and Child Nutrition[6] which highlighted the need for both nutrition specific (direct) and nutrition sensitive (indirect) interventions. Similar approach has also been envisaged in the National Nutrition Policy 1993[7]. This signify towards the need to imply a multi sectoral approach for addressing malnutrition. The nutrition specific interventions highlighted included adolescent and maternal nutrition, promotion of optimal breastfeeding and IYCF practices, food and micronutrient supplementation programmes for young children and in pregnancy and lactation, prevention and management of SAM and disease prevention and management.

Optimal IYCF practices including early initiation of breastfeeding within one hour of birth, colostrum feeding and exclusive breastfeeding for the first six months of life are especially critical for child survival and development. Breastfed children have at least six times greater chance of survival in the early months than non-breast children, as breastfeeding also drastically reduces deaths from acute respiratory infection and diarrhoea, two major child killers.[8] Optimal breastfeeding also enhances the infant mother bonding and benefits maternal health by reducing post-partum haemorrhage and increasing birth intervals. It is also important to ensure timely and appropriate complementary feeding after six months (along with continued breastfeeding for two years or beyond) using family food resources. Child care services, linked to health care, supplementary nutritional support, regular tracking and promotion of child growth and counselling of mothers/families also contribute to reducing vulnerability to undernutrition and reducing risks to healthy child development.

Save the Children initiated multi sectoral nutrition programme interweaving set of evidence based interventions in Pindra Block of Varanasi District in Uttar Pradesh and in Gumla Sadar Block of Gumla District in Jharkhand.

1.2 Project Karuna

Save the Children, Bal Raksha, Bharat (SC/ BR) launched Project Karuna in the states of Jharkhand and Uttar Pradesh with the goal of contributing to the reduction in child under-nutrition in India by 50% by 2015 (in line with the Millennium Development Goal 1).

Project Karuna aims to generate evidence across India to advocate for policy and programmatic changes at the Government level to address child under-nutrition, especially SAM, in areas with the highest malnutrition rates. The project was implemented in 190 villages of Pindra Block of Varanasi District; a rural area in a backward district of Uttar Pradesh; and 108 villages of Gumla Sadar Block of Gumla District; a tribal area, affected by insurgency in Jharkhand. Its specific objective is to contribute to improved nutrition security in the specified project areas of Jharkhand and Uttar Pradesh by providing the following specific inputs by:

[6] The Lancet, Series on Maternal and Child Undernutrition, 2013.
[7] National Nutrition Policy, Ministry of Women and Child Development, 1993.
[8] The Lancet, Series on Maternal and Child Undernutrition, 2008.

- Facilitating convergent action and coordinated implementation of the Leadership Agenda for Action by Government departments,
- Strengthening and making the ICDS more effective through inclusion of a Community based Management of Acute Malnutrition (CMAM) approach for outpatient treatment of SAM using RUTF, and
- Improving IYCF practices

The beneficiary group constituted children aged 0-6 years and their families. However, the target group for CMAM were children aged 6 -59 months as the prevalence of SAM is highest in this age group. For IYCF, the focus was on children 0-23 months of age. Specific interventions under the project were as follows:

Multi-Sectoral Approach	Facilitating inter-sectoral collaboration and Leadership Actions for Nutrition Security through developing the block operation plan (BOP) to focus on strategic inputs and new activities meant to catalyse and improve the delivery of government programmes and schemes which have a role in ensuring nutrition security in a Block. The BOP facilitates necessary coordination and linkages to leverage their potential in relation to nutrition outcomes.
Strengthening Monitoring Mechanism	Streamlining regular monitoring mechanism through facilitating district and block level monitoring committee meetings to address issues pertaining effective service delivery through Village Health and Nutrition Days, supply of drinking water, sanitation provisions at Schools and Aganwadi centres, distribution of IFA tablets etc., promoting joint monitoring visits as a tool to ensure quality service delivery with an aim to sort out the issues on the spot or take initiatives at departmental level for finding an effective solution to the problem, promoting community monitoring for improved service delivery.
Strengthening Institutions	Strengthening Village Health Sanitation and Nutrition Community Committee realizing health and nutrition needs of the village and facilitate development of Village Health Plan, Strengthening of Mata Samiti to facilitate participation of beneficiaries in addressing nutrition issues.
Strengthening Service Delivery Platforms	Supporting convergent efforts to improve maternal and child health through improving delivery of services including screening of the children, distribution of take home ration, regular immunization etc. at Anganwadi Centres and Village Health and Nutrition Days.
Improving Record Keeping	Facilitating documentation at Anganwadi Centre for maintaining records of death/birth, other events and activities, status of malnutrition, mother and child health, weighing, growth charts plotting, services provided at VHNDs etc. The record keeping help in improving coverage and service delivery.
Positioning of Nutrition Champions	Positioning the change agents- Nutrition Counsellors to promote nutrition security by changing behaviours and practices,

	Improving service delivery, facilitating community participation, evidence based actions, extend capacity building and trainings to frontline workers, supportive supervision and follow up action.
Out Nutrition in Our Hands	Promoting Nutrition Gardens i.e to develop a small orchard of green vegetables and fruits plants in the premise of Anganwadi Centre and School with an aim at providing green vegetables to be used in the meal for the children and also aimed to draw attention of children to learn the nutrition aspect through extracurricular activity and helping community to take action for their nutrition security through facilitating community action for usage of Ready to Eat (RTE) food in order to address malnutrition. It is the complementary food that is provided to pregnant women, lactating women and children aged 6-36 months to supplement their nutrition requirement.
Behaviour Change Communication	Promoting nutrition and hygiene through changing habits using Tipi Tap, a witty approach to promote hand washing among children in Schools and Anganwadi Centers, Innovative Games – Ludo Game and other activities likes wall writing, organizing street plays, video games, healthy baby shows etc.
Management of Severe Malnutrition	Supporting management of SAM children through facilitating Acute identification of children with SAM, support in establishing linkages with department of health for treatment of SAM, enrolling the child with Anganwadi Centre, provide counselling to caregivers to take proper care of the child at home and feed the child adequately.

1.3 Research Design and Methodology

1.3.1 Rationale for Impact Evaluation

Project Karuna was initiated in 2012 in the specified project areas of Jharkhand and Uttar Pradesh. The project was implemented in 190 villages (inhabited by a population of 2.5 lakh persons) of Pindra Block of Varanasi District; Uttar Pradesh; and 108 villages (inhabited by a population of 1.5 lakh persons) of Gumla Sadar Block of Gumla District; a tribal area, in Jharkhand. Both Varanasi and Gumla are in the Government of India's list of 200 most backward districts for health and nutrition indicators.

Project Karuna primarily intends to demonstrate the effectiveness of an alternative mechanism of malnutrition reduction. It was envisaged that success of the project Karuna that aims at curbing malnutrition rate with a different approach i.e developing an inter-sectoral convergent nutrition action plan and positioning Nutrition Volunteers in the community for promoting IYCF practices and management of SAM children, would bring in the attention of policymakers and, hence, benefit the larger population.

In order to ascertain the impact of the project, a comprehensive baseline and end-line assessment were conducted. Baseline assessment was conducted in the year 2013 with a focus on assessment of

the nutritional status of children of the project areas along with key indicators for assessing programme performance. As the project is currently at withdrawal stage and will be completely withdrawn by September 2016 an end line assessment was conducted in the month of August-September, 2016. The end-line study aimed at providing in-depth analyses of the situation in the project area to assess the impact of the project and changes in key performance indicators, along with insights of lessons learnt to facilitate the replication by the government and other stakeholders.

The baseline and end line assessments have been undertaken by Sambodhi Research and Communications Pvt. Ltd. The baseline findings have already been shared in a separate report in 2013. The present report focuses on end line findings with comparative analysis with baseline values of key indicators.

1.3.2 Objective

The specific objectives of the study were as follows:

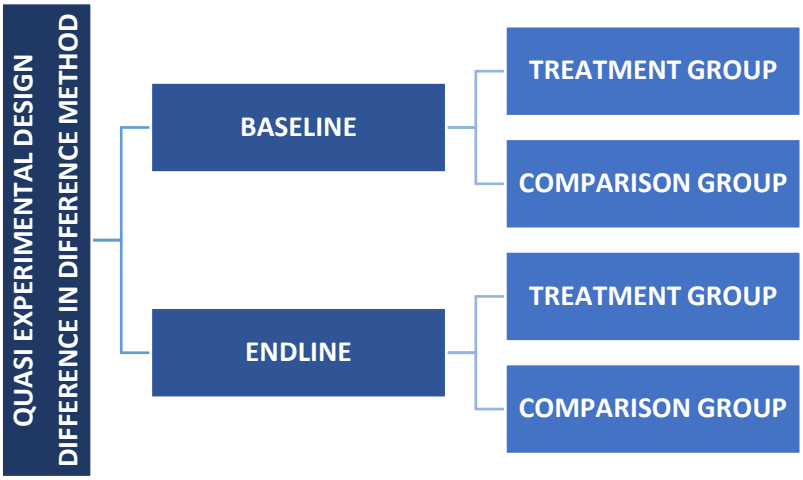
- To assess nutritional status of the project area population (Children 0-59 months) along with key indicators to assess the program performance.
- To compare end line findings with baseline and highlighting the results.
- To document good practices and identify the areas for improvement.

1.3.3 Study Design

To assess the achievement of results and attributable impacts, an Impact Evaluation design was adopted. A quasi experimental cross sectional design using mixed-methods approach, in line with the baseline study, was implemented in the end line assessment as well. To provide an estimate of result with respect to outcome level indicators across the project and comparison groups a difference-in-differences (DID) technique has been adopted to see the change in project and comparison groups at the End-line compared with Baseline. To estimate the causal impact of the project, the study must establish what would have happened in its absence. The impact evaluation is primarily designed as a controlled before and after study, in which a comparison group is chosen from matched areas in neighbouring blocks where Karuna Project interventions have not been implemented. The impact of the project has been studied approximately three years after its start.

The primary sampling unit for much of the data collection is a cluster – defined as a Panchayat village following the census 2011. The impact evaluation has two arms of project and comparison in both the states i.e. Uttar Pradesh and Jharkhand. From each arm 25 villages were selected, i.e. a total of 50 villages were selected from each state. Impact evaluation has been used to compute DID estimator as an estimate to evaluate the effects of interventions and other treatments of interest on outcome variable i.e. Improved nutritional status of children and improved IYCF practices.

Figure 1: Evaluation design



A mixed method approach was adopted to assess the changes in the key indicators due to programme interventions in the baseline and similarly in the end line study. Both qualitative and quantitative tools were developed to capture the information detailed under key research question.

Table 2: The key research questions covered under the quantitative component of baseline and end line study were as follows

1. What is the percentage changes in the incidence rates of severe acute malnutrition among children in the age group of 6-59 months in the project areas?
2. What is the percentage changes in the rates of IYCF practice profile of the mothers of the project area?
3. What is the percentage changes in the diet diversity profile of women / pregnant women of the project area?
4. What is the percentage changes in the Pregnant Women's Iron & Folic Acid supplementation status profile of the project area?
5. What is the household food security level of the project area?
6. What is the percentage changes in the WASH indicator profile for household?
7. What is the percentage changes in the morbidity profile of children?
8. What is the percentage changes in the vaccination profile of children?
9. What is the percentage changes in the Vitamin A and de-worming supplementation status?
10. What is the percentage changes in the health seeking behaviour profile of mothers and health services received?
11. What is the percentage changes in the Household access to and uptake of various entitlements profile?
12. What are the percentage changes in the barriers to optimal IYCF practices?
13. What is the treatment seeking profile of mothers in case of SAM for children?

1.3.4 Research Tools

Following the same methodology as in baseline a mixed method approach i.e. using both quantitative and qualitative tools were used to capture the required information. A detailed quantitative tool was developed to capture information from mothers having children less than 6 years of age on antenatal

care, IYCF practices etc. Qualitative tools were developed to have in depth interview with key stakeholders and Focussed Group Discussions were held with the mothers of children less than 6 years in the community.

Structured schedule for mothers of children belonging to 0-59 months' age group

This schedule captured all the informstion required for quantitative indicators like mother and child anthropometric measurement. Mothers IYCF awareness and practice information. Mothers IFA, Vitamin supplementation information, WASH related information, and health seeking behaviour related information

Focus Group Discussion schedule for the mothers of children of the age group 6-59

The Focus Group Discussion schedule for the mothers of children of the age group 6-59 months conatined qualitative questions pertaining to key indicators covered in the quantitative schedule to triangulate the quantitative data.

Guidelines for In-Depth discussion for ASHA and Anganwadi Worker

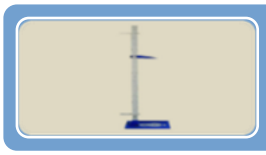
The In-Depth–Interview schedule for the ASHA and Anganwadi Worker captured qualitative questions on the role played by ASHA and Anganwadi Worker, towards the health seeking behaviour (contacting ASHA and Anganwadi Worker, regular check-ups during pregnancy, attending VHND etc.) of pregnant women.

Guidelines for In-Depth –Interview schedule for the project officials of SC/BR

The In-Depth –Interview schedule for the project officials of SC/BR like respective State project mangers and nutrition counsellors captured learnings emerged from implementation of the project.

Guideline for In-Depth-Interview with key officials

These tools captured information on policy convergence towards policy convergence for malnutrition reduction. The tool was administered to officials like BMO, CDPO, Block Education Officer, GP Samiti

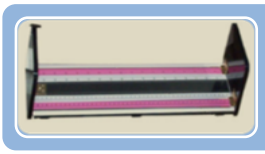


Stature Meter -Adult height measure scale

The height measurement instrument for measuring height of 25-59 months age group children.

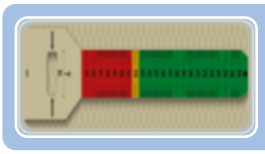
Digital Weighing Scale

Weight measuring instrument for measuring weight of children belonging to 0-59 months' age group



Infantometer

Infantometer will be used to measure the height of 0-24 months' age group children.



MUAC

MUAC tape will be used to measure the uppar arm circumference of 0-59 months' age group children.

1.3.5 Sampling Design

Household sample size calculations are based on an end-line comparison of two groups (intervention versus comparison), using the primary outcomes. In order to measure the changes, which could have occurred due to project interventions, sample size should be statistically adequate to identify and measure those changes. The sample size decision for detecting changes depends on the power i.e. efficiency to detect and measure change, besides depending on level of statistical significance. Sample size was calculated by using

Two-Sample Formula.

$$\text{Number of Units} = \frac{D\,[Z_{1-\alpha}\sqrt{2P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)}]^2}{(P_2 - P_1)^2}$$

Where:

D=Design effect
P1=the estimated proportion at the time of the first survey
P2=the proportion expected at the time of survey
Z1-α=the z-score corresponding [9]to a significance level
Z1-β=the z-score corresponding to the power of key indicator considered for sample calculation: Incidence of wasting (<-2SD)

- Prevalence rate in Gumla, Jharkhand: 20% (2011)
- Prevalence rate in Mirzapur (neighbouring district of Varanasi), Uttar Pradesh: 16% (2011)

The sample size has been calculated using the above formula and setting the design effect at 1.34, confidence level at 95% and to detect a change of 7%. Using the above formula, a sample of 606 households in Gumla (Jharkhand) and 481 households in Varanasi (Uttar Pradesh) will be adequate to detect the change of 7%. To spread the sample evenly we have covered 625 households in Gumla as well as in Varanasi in the project areas and the similar number of households in the comparison areas. Additionally, a total of 300 pregnant women across project and comparison area were covered (3 pregnant women in each selected villages).

1.3.5.1 Selection of comparison blocks

Two comparison blocks were selected using a-priori matching, one each in the project districts. 25 villages in each of the project and comparison blocks were covered. These 25 villages were selected from the list of project villages in each of the project blocks of Jharkhand and Uttar Pradesh by applying probability proportional to size method on the population of the villages. Then 25 comparison villages of similar nature were selected in each of the comparison block using a-priori matching. Comparison blocks were similar to the base line study which, were selected on the basis of these criteria.

[9] HUNGaMA Survey Report 2011

- SC and ST population proportion of the districts (A).
- Literacy rates of the districts (B).
- Proportion of main workers in the districts (C).
- Proportion of cultivators in the district (D).
- Proportion of household industries in the district (E).
- Proportion of 0-6 years' age population in the district (F).
- Proportion of urban population in the district (G)

After the selection of comparison blocks, 25 comparison villages of similar population and social demographic characteristics with the project block were also selected.

Initially household listing exercise was done to identify households (HH) having children of age group 0-59 months and pregnant women in the selected villages. The households in the villages were further classified into two categories: HHs with children between 0-23 months and HHs with children between 24-59 months. In total 22 mothers for above categories and three pregnant women were randomly selected from each village.

1.3.5.2 Samples distribution

The project focusses on improving the nutritional status of children below six years of age, promote IYCF practices amongst mothers with children 0-23 months. Therefore, the respondents were mothers of children aged 0-59 months which were further categorized as mothers of children 0-6 months, mothers of children 0-23 months and mothers of children 6-59 months and pregnant women. Details of the sample distribution is given below:

Table 3: Targeted and achieved sample distribution

State	Block type	Children and Mothers (6-59 months - Category A)	Children and Mothers (0-23 months - Category B)	Children and Mothers (0-6 months - Category C)	Children and Mothers (0-59 months)		Pregnant women	
		Coverage	Coverage	Coverage	Targeted	Coverage	Targeted	Coverage
UP	Project	467	291	69	550	536	75	73
	Control	446	279	71	550	517	75	75
JHARKHAND	Project	471	291	73	550	544	75	70
	Control	453	292	79	550	532	75	73
Total					2200	2129	300	291

***Note**: Total 25 HHs were sampled in every village. Anthropometric measurements were taken from children and their mothers were interviewed. Category A & B, B& C are overlapping.*

1.3.5.3 Respondent groups

Questions related to socio-economic profile, hygiene and sanitation, food security and village health nutrition days (VHNDs) were asked from all the respondent categories. For quantitative assessment, there were four categories of respondents:

Table 4: Details of the respondent groups and area of inquiry are given as under

S. No.	Respondent Group	Area of Inquiry
1	Pregnant women	Current ANC and other pregnancy-care
2	Mothers of children less than 6 months of age	ANC, new born care, IYCF practices, malnutrition child health and vaccination
3	Mothers of 0-23 months' age children	IYCF practices, malnutrition, child health and vaccination and the anthropometric measurement of their children
4	Mothers of 6-59 months' ages group children	Malnutrition and child health and the anthropometric measurement of their children

1.3.6 Methodology for Anthropometric assessment

Anthropometric data collection comprised of height, weight and Mid Upper Arm Circumference (MUAC) measurements. One of the study objective was to ascertain the changes in the Nutritional status of children below 6 years of age over the period of project implementation. Therefore, height weight and MUAC of children in the age group of 6-59 months was measured using calibrated weighing machines, infant meters and Stature meters.

1.3.7 Indicator Matrix

For maintaining the comparability of data from baseline, no major revision was made in tools and indicators during the end-line study.

Table 5: Key indicators of the study

Key Indicators
Nutritional Status
1) Proportion of children who are suffering from wasting (WHZ-score<-2)
2) Proportion of children who are suffering from stunting (HAZ-score<-2)
3) Proportion of children who are underweight (WAZ-score<-2)
4) Proportion of severely malnourished children (Mid Upper Arm Circumference<115)
Infant and Young Child Feeding Practices
1)Proportion of infant and young children ever breastfed.
2) Proportion of mothers initiating breastfeeding within one hour of birth.
3) Proportion of mothers practising exclusive breastfeeding during the first six months of life.
4) Proportion of mothers feeding colostrum to the new-born
5)Percentage of mothers reporting various reasons for not practicing breastfeeding (including social, knowledge, physical and economic)
6) Proportion of children consuming various drinks over the last 24 hours
7) Proportion of children eating various food items over the last 24 hours
Morbidity
1) Proportion of children suffering with any illness (diarrhoea, pneumonia, jaundice) in the last three months
2) Proportion of children suffering with various illness (diarrhoea, pneumonia, jaundice) in the last three months
3) Percentage of children under <36 months with diarrhoeal episode in the last two weeks.
Malnutrition Treatment Services
1) Percentage of mothers reporting receiving growth monitoring service for child.
2) Proportion of mothers reporting diagnosis of malnutrition status of their child by various health care provider/sources.
3) Proportion of mothers reporting availing services of malnutrition treatment for child.
4) Proportion of mothers reporting receiving various types of malnutrition services.
Immunization
1) Percentage of children having received various vaccines covered under the routine immunization program.
2) Percentage of children having received full immunization
3) Proportion of children who received dose of Vitamin A supplement (100000 IU) at 9 months' age.

4) Proportion of mothers reporting various reasons for no immunization
Health seeking behaviour of mothers
1) Percentage of pregnant women/mothers registering pregnancy within first trimester
1) Percentage of pregnant women/mothers reported to receive antenatal services and counselling from various sources
2) Percentage of mothers receiving antenatal care for last pregnancy from various sources (a) home b) Public Medical Centers c) Private medical centres.)
3) Proportion of mothers/pregnant women receiving at least 3 ANC check-ups
4) Proportion of mothers received 100 IFA tablets.
5) Proportion of mothers/pregnant women receiving 2 TT injections.
6) Percentage of women giving birth in a) Govt. hospital b) PHC c) Home d) In-Transit
7) Percentage of respondents reported of receiving proper delivery mechanism.
Household access to and uptake of various entitlements
1) Percentage of mothers who received benefits from various schemes like JSY, JSSK or any other.
2) Percentage of respondents receiving food ration from aaganwadi center.
3) Percentage of respondents receiving THR under VHND program
Health Care Awareness
1)Percentage of women aware about health care facilities in case of child illness.
2) Percentage of mothers reporting various symptoms of SAM (thinning, wasting, stunting, underweight etc.)
Women Dietary Diversity
1) Intake of the following food items in last 24 hours. **a) Pulse; b) Rice; c) Chapattis; d) Bread; e) Biscuits; f) Millets; g) Roots and Tubers; h) Nuts and Oil Seeds; i) Milk Curd and Butter; j) Meat/Fish/ Egg; k) Green leafy vegetables; l) Other vegetables; m) Orange coloured fruits (mango, papaya, oranges); n) Other fruits; o) Nuts and Seeds p) Oils and fats; q) Sweets/Snacks; r) Tea/coffee; s) Others**
Household Food Security
1) Proportion of women reporting worry about not having enough food for their household.
2) Proportion of women reporting skipping a meal or not having food for whole day by themselves or any of their household member.
WASH indicators
1) Percentage of households having access to improved source of clean/safe drinking water
2) Percentage of households having access to improved sanitation facility.
3) Percentage of respondents who wash their hand at critical occasions.

1.3.7.1 Qualitative Evaluation

Integrating qualitative methods were adopted to broadly include the following objectives:

a) Provide a story line to the any change that may happen and also to better respond to the **"**why" and "how" of change of project activities
b) Qualitative tools shall also contribute to our understanding of indirect benefits or outcomes

1.3.7.1.1 Provide insights on programme intervention processes Focus Group Discussions

- Focus Group Discussions with the mothers of children in the 6-59 months' age group were held. Various parameters pertaining to child health, malnutrition, hygiene practises and IYCF practises were discussed. Focus Group Discussion schedule for the mothers of children of the age group 6-59
- The Focus Group Discussion schedule for the mothers of children of the age group 6-59 months will contain qualitative questions pertaining to all the indicators which are covered in

the quantitative schedule. The qualitative responses will help to triangulate the quantitative data.

1.3.7.1.2 In Depth Interviews

1. In depth interviews were conducted with ASHAs and AWWs to assess the role played by the ASHAs and AWWs in spreading awareness and helping health seeking behaviours by mothers and pregnant mothers.
2. In depth interview of other key officials were conducted to understand the issues in policy convergence towards reducing SAM and promoting IYCF practises.

- The In-Depth –Interview for the project officials of SC/BR like Project managers and nutrition counsellors was conducted to will capture the various perceived road blocks aspects towards the project implementation.
- The In-Depth–Interview schedule for the ASHA and Anganwadi Worker was conducted to ascertain the role played by ASHA and Anganwadi Worker

1.3.7.1.3 Sample size for FGDs, ASHA, AWW and Project Personnel's

Table 6: Qualitative sample coverage in villages

		FGDs (mothers of 6-59 months' children)	IDIs – ASHA	IDIs - Anganwadi worker
JHARKHAND	**PROJECT**	8	8	8
UTTAR PRADESH	**PROJECT**	8	8	8
TOTAL		16	16	16

1.3.7.1.4 Sample size for other key officials

The in depth interviews were conducted with frontline workers i.e. ASHA and Anganwadi workers in the project areas to understand the perspective of these service providers. To understand the perspective of community, focussed group discussions were also held with mothers of 6-59 months' children in project areas.

Table 7: Sample coverage for other key officials in-depth interview's

	IDIs with BMO	IDIs with CDPO	IDIs with Panchayat Samiti Presidents	IDIs with block education officials	IDIs with nutritional counsellors	IDIs with Project Manager
PROJECT, JHARKHAND	1	1	2	1	2	1
PROJECT, UTTAR PRADESH	1	1	2	1	2	1
TOTAL	2	2	4	2	4	2

In depth interviews were held with block officials including BMO, CDPO, PHED officials, Panchayat Samiti Presidents, agriculture extension officials, nutritional counsellors and Karuna project manager

1.4 Analytical framework

Quantitative data has been analysed for basic analysis, anthropometry analysis and Difference-in-Difference.

1.4.1 Basic Analysis

a) Simple percentage of all variables of interest

b) Descriptive statistics of key variables

c) Morbidity profile

1.4.2 Advanced analysis

Anthropometrics approach to study nutrition: Weight-for-age (W/A), Height for age (H/A) and Weight for height(W/H), Mid Upper Arm Circumference (MUAC)

The three indexes were calculated for each child namely, the Weight for age, Height for age and Weight for height, from the anthropometric measurements. Then based on the z scores generated using WHO-Anthro + software the children were categorized into various malnutrition classes, based on the score for each of the indicators. Low W/A score means underweight, Low H/A score means stunting and low weight for height means wasting. All of these categories are different types of malnutrition.

1.4.2.1 Z-score

Z score provides the distribution spread in terms of standard deviation above or below median value. It is mathematically defined as the difference between an individual observation and the median value of the reference population for the same variable, divided by the standard deviation of the reference population. WHO classification criteria to compute the cut-off to assess the malnutrition status was used.

Table 8: WHO classification of z-scores for different malnutrition classes

Cut-off Malnutrition classification by WHO	
<-1 to -2> Z-score	Mild
<-2 to -3> Z-score	Moderate
<-3 Z-score	Severe

1.5 Preparation for Data Collection

Tools for data collection such as structured and semi- structured schedules, guidelines for focus group discussion and in-depth interviews that were developed during the baseline were reviewed and minor revision were made to maintain the comparability of the data from baseline.

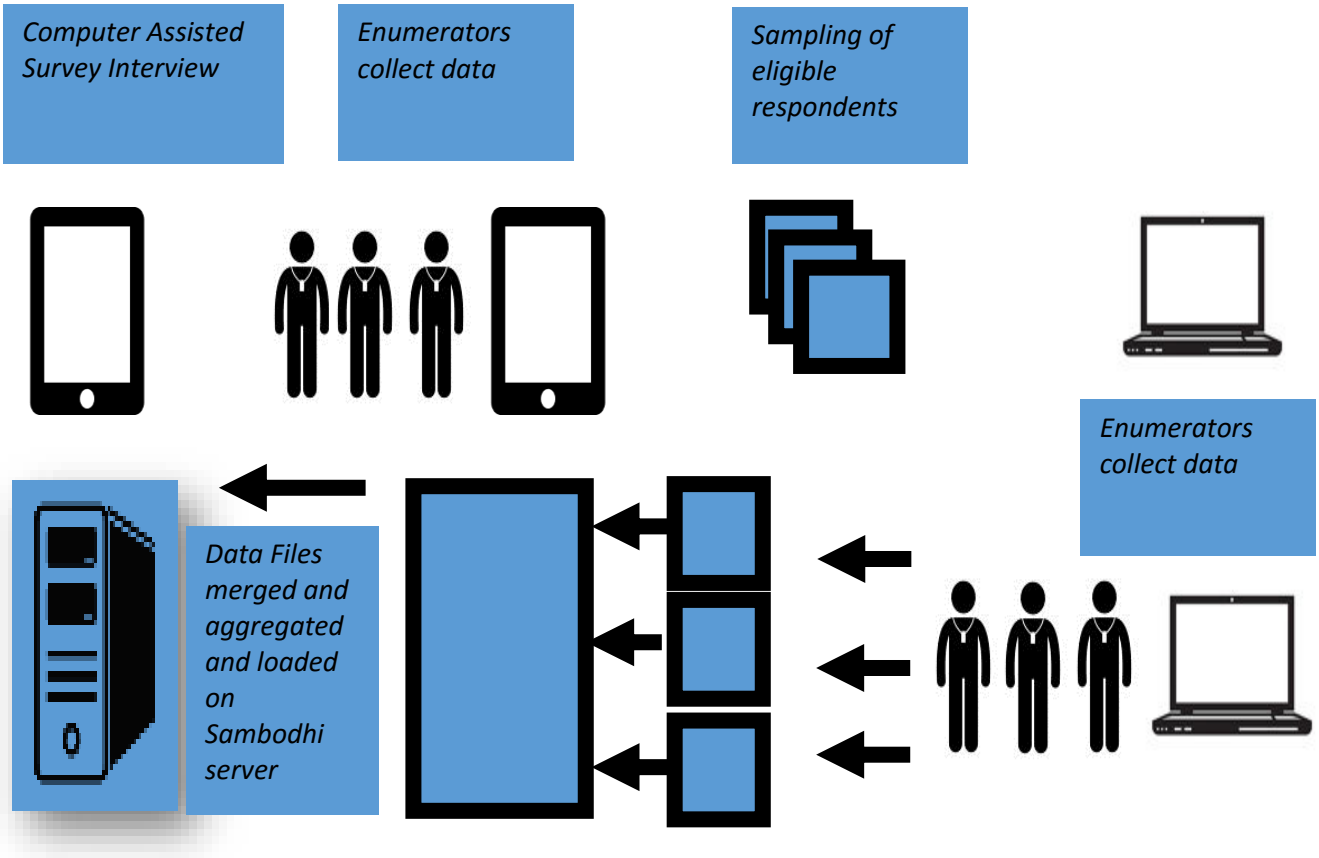
1.5.1 Training

The field team was recruited for quantitative and qualitative data collection. The training of the field team was conducted for 5 days wherein they were briefed about the project Karuna, scope of the study and objective of the data collection. Introduction on Karuna Project and various activities

undertaken in the Pindra and Gumla were explained by the Karuna project officials. Team was also oriented on specific topics under the study, methods to be used to administer the tools, and the outputs expected from the team members facilitated by Sambodhi Team. The entire field team underwent three days of class room session, one day of fieldwork practice followed by one day debriefing session. The training agenda was designed such that it ensured the field enumerators have clear knowledge of using laptops, anthropometric devices and other instruments. Karuna Project officials provided insights during fieldwork practice.

1.5.1.1 Data Collection and Processing: Quantitative

A. Ensuring data quality



A data-collection technique using state-of-art technological interfaces such as laptops etc. using computer-assisted personal interviewing (CAPI) programme. The completed survey data was electronically transferred back to the database server. Automated reports from the database were generated weekly regarding the status of data collection in each district, and shared with the research managers. Additionally, field manager was employed to plan the field movement and monitor quality of data collection on the field.

B. Spot check and observation

- Spot checks were done for 10% selected households.

- Reviews were done for each questionnaire on laptops for ensuring that the questionnaires were complete and were internally consistent.
- Checks were done to see, if the laptops, anthropometric devices and other instruments were in proper shape.
- Meetings were held with each member of the team on a daily basis to discuss the quality of data collected by them.

C. Back check

Field manager ensured that for all area/calls wherein completion rate was found to be low or seemed to be a problem, back checks were done by himself/supervisor of other team.

D. Data Processing and Management / Ensuring data check

To ensure that all data checks i.e. a) Validation check, b) Range check and c) Consistency checks were put in place to provide accurate, complete and consistent information. The checks had been built into the program, loaded on the laptops:

- **Validity check**: Validity check ensured that the record identifiers, invalid characters, and values had been accounted for; essential fields had been completed (e.g., no quantity field was left blank where a number is required).
- **Range checks**: data was tested for range checks to ensure that all numerical data fields containing information fell within a specified range.
- **Consistency checks**: These checks eliminated all the errors introduced during the data collection.

1.5.1.2 Data Collection and Processing: Qualitative

A. Conducting Interviews and Focus Group Discussions:

Prior to working with any individual or group, the team members explained:

- The objectives of the study.
- The type of information, which would be solicited during the interview or focus group and how it would be recorded.
- That the participation was entirely voluntary and no adverse consequences would come to those refusing to participate.

2 Socio Economic Characteristics of Respondent Groups

This chapter includes the social and economic profiles comprising of religion, caste, literacy, occupation, access to services etc of the respondent groups.

2.1 Demographic, Educational and Economic Profile

Table 9: Religion distribution of respondents

State	Type of Block	Hindu (%)		Muslim (%)		Christian (%)		Others (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	93.80	92.4	6.10	7.4	0.10	0.20	0.00	0.0	739	609
	Comparison	90.2	90.0	9.8	9.8	0	0	0	0.2	834	592
JHARKHAND	Project	87.90	67.43	3.90	6.35	2.00	3.26	6.20	22.96	741	614
	Comparison	89.2	80	0	0	6.3	10.08	4.4	9.92	630	605

In baseline and end line, majority of the respondents in the project and comparison areas were Hindus followed by Muslim, Christian and others. In UP, a slight increase in Muslim (1.3%) and Christian (0.1%) was observed. In Jharkhand many indigenous tribal religious group were also present majority of them follow Sarnaism. Also, the Christian respondents were found to be slightly higher (2.69%) in end line. The variation in percentage of underweight children among various religions was observed in NFHS 3 with higher prevalence in amongst Hindus and Muslim than Christian, Sikh and Jain communities.[11]

Table 10: Caste distribution of respondents

State	Type of Block	General (%)		SC (%)		ST (%)		OBC (%)		Others (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	16.50	20.85	24.60	32.35	2.00	3.61	54.00	43.19	2.80	0.0	739	609
	Comparison	22.7	15.37	20.1	34.80	1.6	4.39	54.1	45.27	1.6	1.0	834	592
JH[10]	Project	10.00	8.79	5.80	9.61	60.60	54.56	23.30	26.71	0.30	0.33	741	614
	Comparison	8.6	5.45	8.4	22.48	65.6	50.91	17	20.66	0.5	0.50	630	605

Caste wise distribution of respondents varied in Pindra, UP and Gumla, Jharkhand. In Pindra majority of the respondents were from Other Backward Category whereas in Gumla, majority of respondents were from Scheduled Tribe category during both baseline and end line study. NFHS 3 also highlighted that problem of underweight children was higher among Schedule Tribes, Schedule Castes and Other backward classes.[11] This may have an impact of malnutrition prevalence in study area.

Table 11: Literacy rate and years of schooling of respondents

State	Type of Block	Literate (%)[11]		With more than 10 years of Schooling (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	66.30	80.62	38.10	55.99	739	609
	Comparison	66.20	72.47	38.80	52.03	834	592
JHARKHAND	Project	47.20	61.07	15.40	29.32	741	614
	Comparison	51.30	58.18	16.20	26.28	630	605

[10] JH means Jharkhand
[11] Those who read and write considered as literate, NFHS.

The NFHS 3 data shows that Mother's education has a direct impact on the nutritional status of the children.[12] Malnutrition in children has found to decrease with increase in Mother's years of complete schooling. Data from Pindra, UP and Gumla, Jharkhand shows a considerable increase in percentage of literate respondents i.e pregnant women and mothers of children below 6 years of age from baseline to end line both in project and comparison areas. Similar trend was observed in data of mothers with more than 10 years of schooling. This may have a positive impact on nutritional status of children in study areas.

Table 12: Ownership and type of house

State	Type of Block	Having own house (%)		Type of house						N	
				Kutcha (%)		Semi-Pukka (%)		Pukka (%)			
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	92.2	87.52	22.30	15.11	47.50	46.31	30.20	38.59	739	609
	Comparison	92	86.82	25.1	19.09	50.6	50.84	24.3	30.07	834	592
JHARKHAND	Project	86.60	89.58	67.70	50.98	24.20	39.09	8.10	9.93	741	614
	Comparison	97.8	87.60	77.5	55.87	17.9	38.02	4.6	6.12	630	605

High percentage of respondents reported having own house in project and comparison areas both during baseline and endline. However, except in project area at Jharkhand where a slight increase (2.98%) in respondents reported having own house was observed from baseline to end line other study areas reported a declining values. An increase in respondents reported having Pukka house was observed in project and comparison area in end line when compared with baseline.

Table 13: Primary occupation of chief revenue earner of household

State	Type of Block	Agriculture (%)		Labour (%)		Own business/ self-employed (%)		Others (%)		Salaried (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	27.60	16.58	40.60	40.39	16.20	18.23	2.4	4.60	12.60	20.20	739	609
	Comparison	19.9	15.20	49.00	41.39	20.2	16.22	0.6	5.07	10.1	21.45	834	592
JH	Project	55.60	39.25	34.10	45.77	6.80	8.14	0.3	1.79	3.40	5.05	738	614
	Comparison	71.9	41.65	23.1	48.60	3.5	5.29	0.0	1.65	1.6	2.81	630	605

Majority of household reported primary occupation in UP as Labour in Project (End line: 40.39%) and Comparison area (End line: 41.39%) whereas in Jharkhand major primary occupations in project area were Labour (End line; 45.77%) and Agriculture (End line: 39.25%).

[12] Children in India, 2012- A Statistical Appraisal, Ministry of Statistics and Programme Implementation. Government of India.

1.1 Access to Services

Table 14: Proportion of households with access to financial and economic services

State	Type of Block	Have bank A/C (%)		Have RSBY card (%)		Have NREGS job card (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	77.50	93.92	7.30	6.40	29.80	19.70	739	609
	Comparison	77.10	89.02	10.1	2.03	13.8	16.89	834	592
JHARKHAND	Project	48.70	85.83	19.40	7.49	49.70	46.09	738	614
	Comparison	52.2	77.19	14.6	6.78	57.3	39.17	630	605

Percentage of respondents reported having bank account increased in project and comparison areas both in UP and Jharkhand from baseline to end line. This may be due to Government's recent focus on opening bank accounts. However, percentage of respondents reported having RSBY card and NREGS job card decreased in end line from baseline across the project and comparison area except in comparison area of UP where a slight increase (3.09%) was observed in NREGS job card.

1.2 Women work profile, Membership of organizations and decision making power

Table 15: Women's occupation profile

State	Type of Block	Unskilled & Agricultural labour (%)		Skilled labour (%)		Service/Business/Social Work		Housewife		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	2.30	4.93	1.80	0.66	2.98	2.13	93	92.28	739	609
	Comparison	2.04	7.94	2.40	2.03	2.88	3.21	92.69	86.82	834	592
JH	Project	20.90	35.83	5.10	4.79	3.39	1.95	70.60	55.05	741	614
	Comparison	22.38	32.56	8.25	5.99	2.38	1.98	66.98	60.66	630	605

Most of the respondents in the project and comparison areas in baseline and end line in both the states were housewife. In Jharkhand, second highest engagement of women was in unskilled and agricultural labour both in baseline and end line followed by skilled labour and service/business and social work. In UP, second highest engagement was in unskilled and Agricultural labour followed by service/business and social work and skilled labour in endline in both project and comparison areas.

Table 16: Membership of various village level organizations13

State	Type of Block	SHG (%)		Health samity of panchayat /VHSNC (%)		Religious groups (%)		Cooperatives (%)		Elected member of *panchayat* (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	2.4	6.73	0.9	0.16	1.5	0.33	1.9	0	0.8	0.33	739	609
	Comparison	7.3	9.46	0.7	0.34	2.0	0.51	1.6	0.17	1.1	0.68	834	592
JH	Project	5.7	35.99	0.5	0.49	0.3	0.16	0	0.16	0.5	0.98	738	614
	Comparison	20.8	33.06	0.5	0.33	1.3	0.33	0.6	0.17	0.8	1.65	630	605

[13] Only the proportions of respondents who are members of various organizations are reported here.

In Jharkhand, more number of respondents were member of SHGs compared to U.P. in both baseline and end line. This could be due to emphasis on expanding PRI efforts to support women's self help groups under the Project Karuna, a marked increase was observed in Jharkhand. Membership of respondents in various other group almost remain same across study population. It has been observed that through SHGs, women have access to financial services, such as loans, savings and insurance. SHGs also provide a strong platform for women to participate in health and nutrition services, such as health and nutrition education, information on government health and nutrition programmes, linkages to health providers and community health volunteers etc[14]. This may have an impact on women's awareness and hence improved health and nutrition practices.

Table 17: Proportion of women taking self-decisions on various issues

State	Type of Block	Decisions about healthcare of self (%)		Decisions about healthcare of child (%)		Decisions about making major household purchases (%)		N	
		Baseline	End line	Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	9.10	8.87	14.70	13.14	9.20	6.08	739	609
	Comparison	9.0	14.86	12.5	18.41	10.8	8.45	834	592
JHARKHAND	Project	9.30	14.50	21.10	15.80	7.60	8.47	738	614
	Comparison	15.1	15.21	30.3	13.55	10.5	6.94	630	605

In project area, 14.50% of women respondent of Jharkhand reported that they take self-decision on their health care needs whereas values remain same in U.P in end line when compared to baseline.

1.3 Marriage age

Table 18: Proportion of women married before the legal age and the mean age at marriage

State	Type of Block	Married before legal age (%)		Mean age at marriage (years)		N	
		Baseline	End line	Baseline	End line	Baseline	End line
UP	Project	44.9	23.97	17.18	18.48	739	609
	Comparison	42.44	27.03	17.43	18.36	834	592
JHARKHAND	Project	33.0	27.85	18.04	18.44	741	614
	Comparison	35.73	28.10	18.03	18.39	630	605

The percentage of respondents married before legal age has decreased across the project and comparison areas in both the states. Mean age at marriage has increased in project and comparison areas across both the states, higher increase was observed in Uttar Pradesh than Jharkhand. It has been observed that with early age of marriage there are chances of women entering pregnancy at a younger age which may have an adverse impact on maternal health and birth outcomes.

[14] Leveraging the Power of Women's Groups and Financial Services to Improve Knowledge and Behaviours for Improved Child and Maternal Nutrition, implementation Note, POSHAN, 2014

3 Varanasi, Uttar Pradesh

This study aims to establish a logical cause and effect linkage through evaluation of various factors that have enabled or restricted change in outcome and the Impact of the intervention. This chapter details out these indicators in following categories.

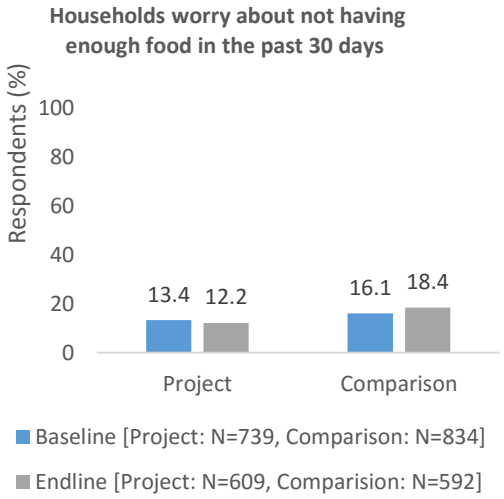
3.1 Food security and dietary practices

The current section describes HH food security related indicators and the dietary practices of mothers and pregnant women. In addition, change in value of indicators from baseline to end line is also explained. Availability of food affects the nutritional status of the population, scarcity of adequate food may lead to malnutrition and it is specifically important for pregnant women and growing children.

3.1.1 Food security

Food security, as defined by the United Nations' Committee on World Food Security, is the condition in which all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Hence, food security is an important factor for nutritional status of the population. In the present study, respondents were inquired about availability of food at household level in month prior to survey.

Figure 2 : Households' worry about not having enough food in the past 30 days



The percentage of HHs worry about not having enough food in the past 30 days was decreased (1.2%) in project area while in comparison area this number has increased (2.3%) from baseline. This implies that access to food has slightly improved in project area while it has deteriorated in comparison area. At end line, 2.7% in project area and 9.2% in comparison area of respondents reported that they were worried about not having enough food for the HH more often i.e more than 10 times in the past 30 days prior to survey. These values decreased for project area from baseline to end line while increased in comparison areas.

Qualitative findings on lack of food resource

Most of the women respondents discussed that they face food insecurity during rainy session and sometimes during summer.

"This happen mostly during rainy session due to lack of money due to which we face challenges in buying vegetables and food grain because during this time period we require money for agriculture."….reported by FGD 018

Association between the socio-economic background and food insecurity was also computed. For Hindu and Muslim food security was increased by 2.3% and 4.7% respectively in end line for project area. Caste wise distribution showed that respondents mentioned worry about not having enough food in the past 30 days decreased by 3%, 2.9% for SC and OBC respectively, while increased for General (1.2%) and ST (6.5%) during end line from baseline. Whereas in comparison area 3.2% of respondents from SC category were more worried about having sufficient food in end line compared to baseline in comparison area. It decreased for General and ST population and remained unchanged for OBC.

Details of frequency and distribution of worry about not having enough food in households on the basis of selected socio-economic background characteristics are given at annexure.

3.1.2 Dietary Practices

Studies have shown that dietary practices of pregnant and lactating women have an effect on maternal and child nutritional status. Maternal undernutrition is associated with low birth weight and all its attendant adverse consequences in children.[15] Dietary practices of pregnant women and women with children less than 6 years of study area were captured in the present study.

During end line survey consumption of white tubers and roots, green leafy vegetables, other vegetables, fruits, "nut, seed, oil & fats" and milk products was increased in both categories i.e. mothers of children in the age group of 0 to 59 months and pregnant women, while consumption of vitamin rich vegetables and tuber, meat, beans etc. decreased by nominal value in both the categories from baseline in project area. Rest of the food item consumption remain almost similar. Increase in intake of white tubers and roots, nut, seed, oils and fats provide for energy, green leafy vegetables, other vegetables and fruits for vitamins and minerals and milk products for calcium and protein in the study group.

Table 19: Dietary practices among respondent groups in project area

	Baseline		End line	
	UP Project Block (%) (n=641 for A and n=98 for B)		UP Project Block (%) (n=536 for A and n=73 for B)	
	Mothers of children in the age group of 0 to 59 months	Pregnant Women	Mothers of children in the age group of 0 to 59 months	Pregnant Women
Food Item	**(A)**	**(B)**	**(A)**	**(B)**
Cereals	98	98	99.4	91.8
Vitamin rich vegetables and tubers	52.4	48	42.7	35.6
White tubers and roots	40.7	34.7	72.8	67.1
Green leafy vegetables	20.7	18.4	29.9	31.5
Other vegetables	20	18.4	40.1	32.9
Fruits	7.8	17.3	28.9	34.3
Meat	0.9	1	1.3	0
Egg	2.8	3.1	1.9	2.7
Fish	0.8	1	0.9	1.4
Beans, peas, lentils	15	15.3	13.6	13.7
Nuts, seeds, oils, fats	1.1	0	1.7	2.7
Milk products	10.9	17.3	16	21.9
Tea/ coffee	3.1	2	50.4	54.8

3.2 Hygiene and Sanitation Practises

Improved condition of sanitation and hygiene practices are associated with reduction in malnutrition. Growing evidences suggest that constant exposure to germs and bacteria cause divert of energy and nutrient away from the growth and brain development to fighting survival[16]. This section describes findings pertaining to hygiene and sanitation practices segmented into the following sub sections.

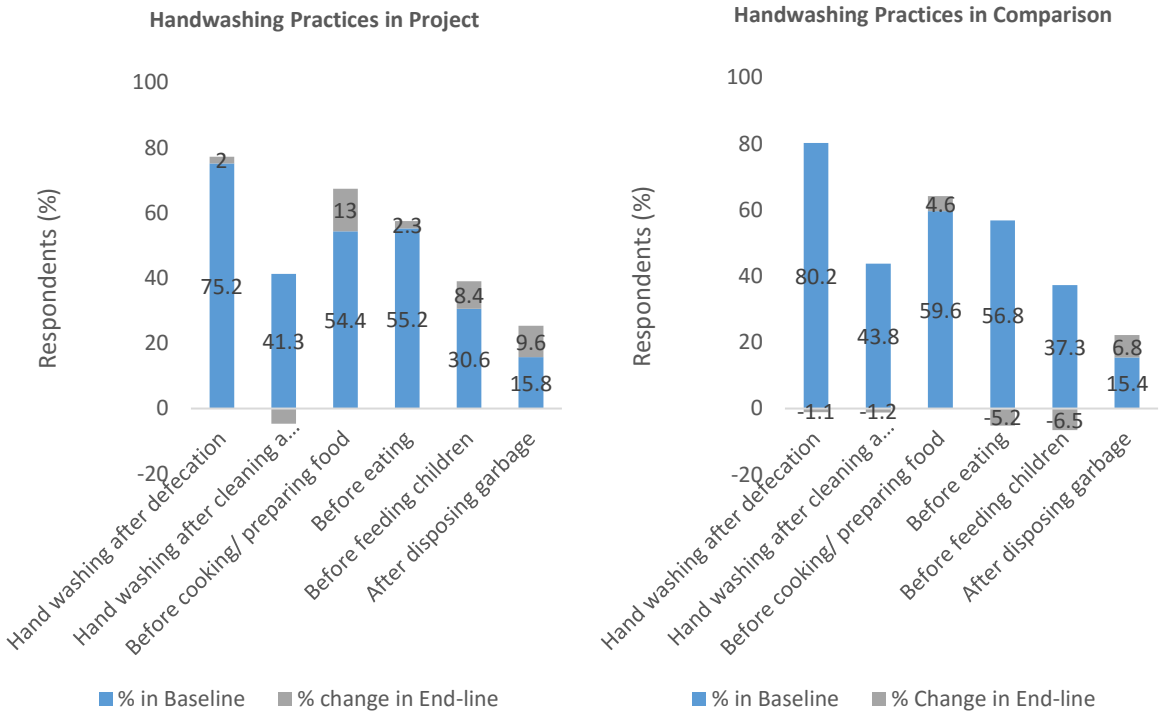
3.2.1 Hand washing Practices

Study tried to find if any improvement has been made in hand washing practices. It was found that percentage of respondents of all categories who wash their hand after certain activities like- after defecation, before cooking, after disposing garbage has increased in end-line as compared to baseline

[15] Nutrition in Pregnancy and Lactation, Ministry of Women and Child Development, Website: wcd.nic.in
[16] Pulitzer center on crisis reporting, the link between sanitation and malnutrition

in both categories and areas. Hand washing before feeding and before eating have increased in Project area for both categories of respondents. Improvement in these indicators may be due to focus on hand washing practices under the project through various activities like innovative games and behaviour change communication. Improvement in these practices may also have a positive impact on nutritional status of children. Details of percentage respondents washing hands at select activities for pregnant women is given at annexure.

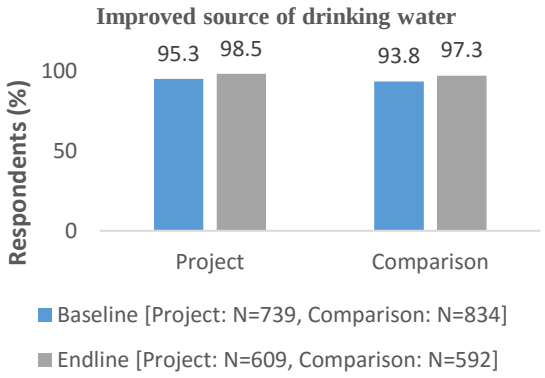
Figure 3: Percentage changes in hand washing practices in selected activities in mothers



3.2.2 Source of drinking water

Along with capturing hygiene practices, study has also captured changes in improved source of drinking water[17].

Figure 4 :Percentage of households having improved source of drinking water



Qualitative findings on source of drinking

Hand pump was most common source of drinking water reported during FGD.

"We use hand-pump water for drinking"….FGD 201

Number of HHs having improved source of drinking water has increased from baseline in both project and comparison areas. During baseline, maximum HHs had improved source of drinking water. During end-line, an increase of 3% and 3.5% has been observed in project and comparison areas respectively. Safe drinking water is one the determinant of the nutritional status.

[17] Piped water into dwelling / yard /plot, public tap, stand pipe, tube well or bore well, protected dug well, protected spring, rain water, community RO plant, own hand pump and public hand pump -NFHS 3

With an increase in access to improved source of drinking water a positive influence on nutritional status may be expected.

At end-line "improved source of drinking water" has increased for all castes (except OBC) and religions for both project and comparison area. In project area, maximum change was observed for general category where baseline values were 88% while at the end line 100% HHs had improved source of drinking water. At end line, 99% of SC and 100% of ST HHs had improved source of drinking water in project areas while at baseline 95.6% of SC and 92.9% of ST HH had improved source of drinking water. An increase of 3.2% and 4.5% was noted in Hindu and Muslim HHs respectively in project areas in end line in comparison to baseline. Details of religion and cate wise distribution is given at annexure.

3.2.3 Sanitation Practices

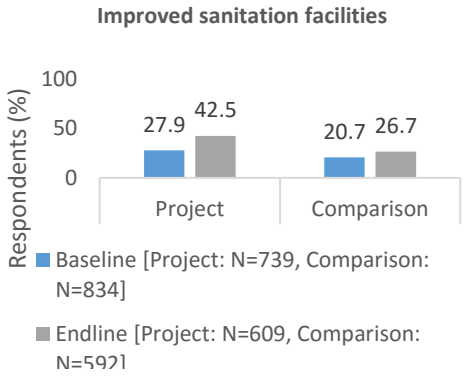
Sanitation practices are one of the key determinants of the nutritional status. In the present study, HH with improved sanitation facilities were studied. Improvement has also been observed in improved source of sanitation facilities[18] in project (BL- 27.9% & EL-42.5%) as well as comparison (BL- 20.7% & EL-26.7%) areas HHs with improved sanitation facilities have improved compared to baseline. Improvement in project area was found to be higher than comparison areas however, the values are still low and further efforts are needed to bring it to a satisfactory level.

Qualitative findings on source of drinking

Most of the respondents reported toile under construction of toilet in their home. Some of the FGD respondents are using toilets. However, some of respondents are not using constructed toilet because of small size of pit.

"Households in the village have toilets with cemented pit"…FGD 202

Figure 5: Percentage of households with improved sanitation facilities



Out of all caste categories general category had maximum improvement in end-line as compared to base-line in both project and comparison. In addition, other caste categories (except SC in project area) also showed improvement in same at both the areas of study. Number of Hindu and Muslims HH having improved sanitation facilities were increased in end-line as compared to base-line. In project area Hindu HH showed more improvement in comparison to Muslim and opposite scenario was observed for comparison area. Details of the religion and caste wise distribution is given at annexure.

3.3 Pregnancy and Antenatal Care

For many children, stunted growth starts before birth as a result of poor maternal nutritional status and worsens gradually during the first 2 years of life. Thus, the first 100 days, from conception until the age of 2 years, are a critical window of opportunity, during which timely interventions can have a measurable and lasting impact on the prevention of child stunting[19]. The chapter describes the

[18] Flushes to piped sewer system, flushed septic tank, Flushed to pit latrine, ventilated improved pit/bio gas latrine, pit latrine with slab, twin pit / composting toilet which are not shared with any other house hold

[19] Household sanitation and personal hygiene practices are associated with child stunting in rural India: a cross-sectional analysis of surveys - http://bmjopen.bmj.com/content/5/2/e005180.full

findings on the pregnancy and antenatal care (ANC) related aspects among women in the project areas. Pregnant women and mothers of children in the age group of less than 6 months were interviewed for collecting information related to pregnancy and ANC.

3.3.1 Pregnancy Registration

At end line in both project and comparison areas improvement has taken place across all aspects of pregnancy registration (except mean month of pregnancy registration) from baseline for Pregnant women as well as Mothers with children less than 6 months. At end line, for aforementioned categories of respondents, increment in "pregnancy registered within 1st trimester" was observed in project area as well as comparison area from baseline, however, this increase is higher in project area. Early registration of pregnancy enhances chances of providing care during pregnancy and detection and treatment in case of any complication. One of the responsibility of Nutrition Counsellors appointed under project Karuna was to ensure timely ANC and PNC.

Table 20 :Pregnancy registration

		Base Line				End Line			
Type of block	Respondent category	Pregnancy registered (%)	Mean month of pregnancy registration	Pregnancy registered within the 1st trimester (%)	N	Pregnancy registered (%)	Mean month of pregnancy registration	Pregnancy registered within the 1st trimester (%)	N
Project	Pregnant women	78.5	3.4	62.6	98	80.8	2.56	80.8	73
	Mothers with children less than 6 months	88.7	3.2	67.2	71	92.8	3.25	72.5	69
Comparison	Pregnant women	71.7	3.2	60.8	92	73.3	2.84	62.7	75
	Mothers with children less than 6 months	83.1	3.1	53.3	89	91.5	3.13	67.6	71

3.3.2 Status of antenatal check-ups ANC

A child whose mother had fewer than four government antenatal care visits was more likely to be malnourished[20]. In this section comparison has been done to find out change in values of various indicators pertaining to ANC during end line as compared to baseline. Ever received ANC services has increased by 21.4% and 16.6% for "pregnant women" and "mothers with children in the age group of less than 6 months" respectively in project area during end line. Similarly, ANC with in first trimester has increased by 9.1% and 4.6% for aforementioned categories respectively during end line in project area. Likewise, blood pressure checked as a part of ANC has increased by 49.5% and 34.6% for discussed categories respectively during end line in project area. Also, received three ANC services has increased by 12.3% and 2.3% for discussed categories respectively during end line in project area. In comparison area percentage of respondents ever received ANC services and blood pressure checked as a part of ANC services has increased for both categories during end line. While, percentage of respondents received ANC within first trimester and received at least three ANC services has decreased during end line.

[20] Childhood Malnutrition is Associated with Maternal Care During Pregnancy and Childbirth: A Cross-Sectional Study in Bauchi and Cross River States, Nigeria - http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4407040/

Figure 6 : ANC services availed by mothers of children in age group of less than 6 months

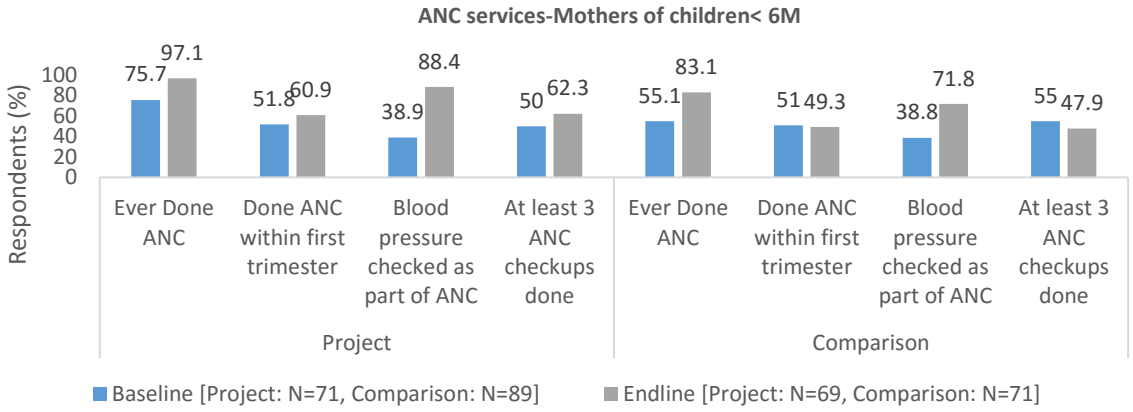
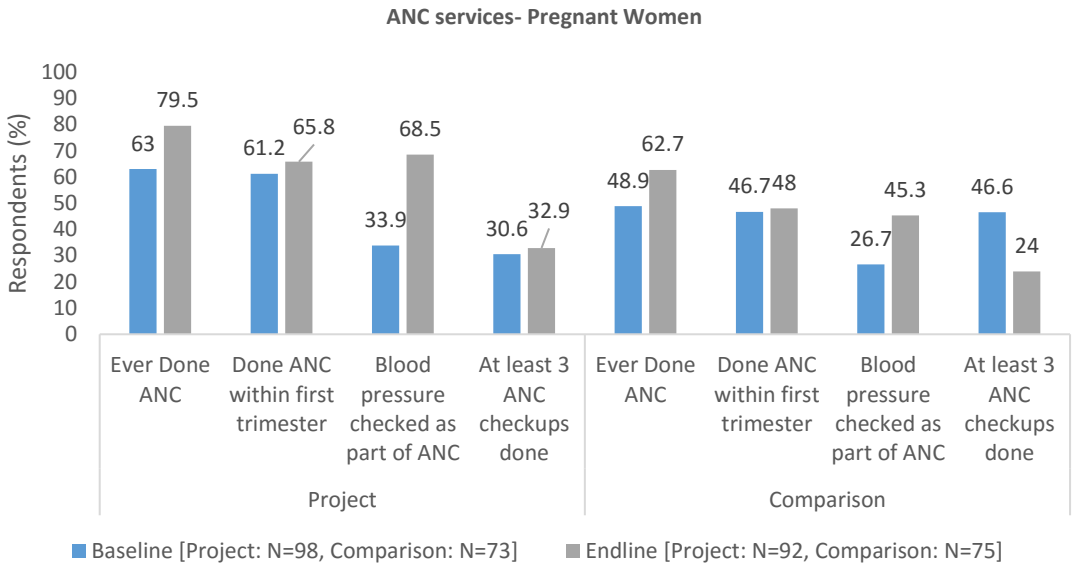


Figure 7 : ANC services availed by pregnant women



3.3.3 IFA supplementation and TT injection

This section describes the percentage of respondents who received Iron and Folic Acid (IFA) supplementation, received at least 100 IFA tablets, at least one TT injection and 2 TT injection during their pregnancy. For "mothers with children in the age group of less than 6 months" in project area, % of respondents received IFA supplementation has increased by 15.3%, received 100 IFA tablets has increased by 21.9%, consumed 100 IFA tablets has increased by 16.6% and received TT injection has increased by 1.4% during end line. Similarly, in comparison area % of respondents received IFA supplementation has increased by 13.2%, received 100 IFA tablets has increased by 18.1%, consumed 100 IFA tablets has increased by 13.8% and received TT injection has increased by 1.4% during end line. As can be seen the percentage increase

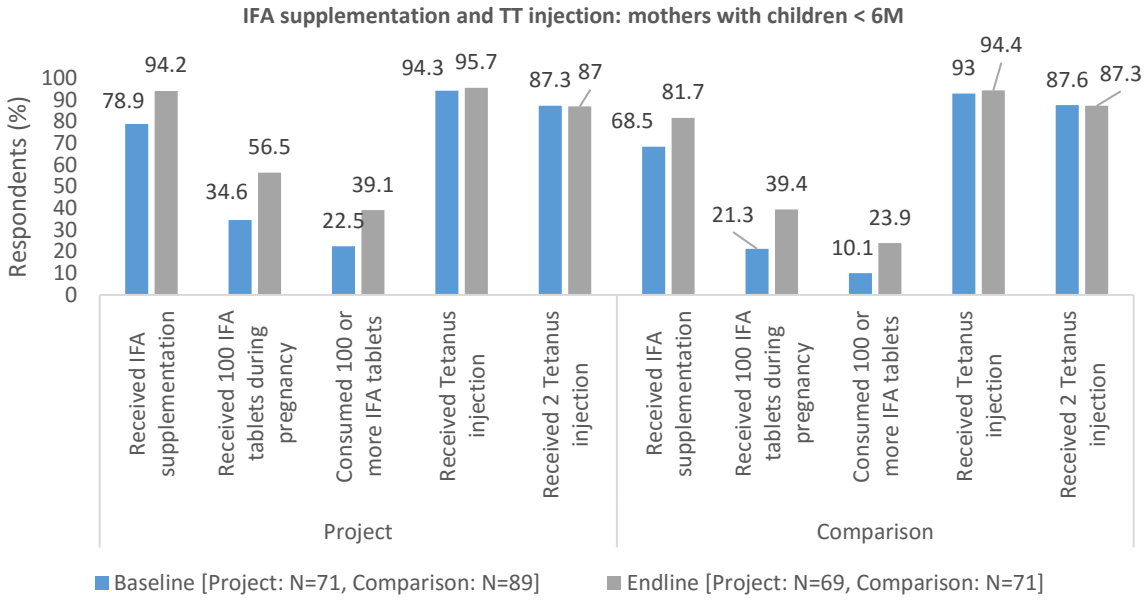
Qualitative findings on ANC services

Respondents were aware about various ANC services such as TT inject, Blood Pressure, weight measurement, IFA supplementation, dietary counselling etc. Most of the respondents received ANC services.

"During pregnancy received following ANC services stomach check-up, blood check-up, urine check-up, IFA tablets and advice about food and satisfied with services I received."….FGD 208

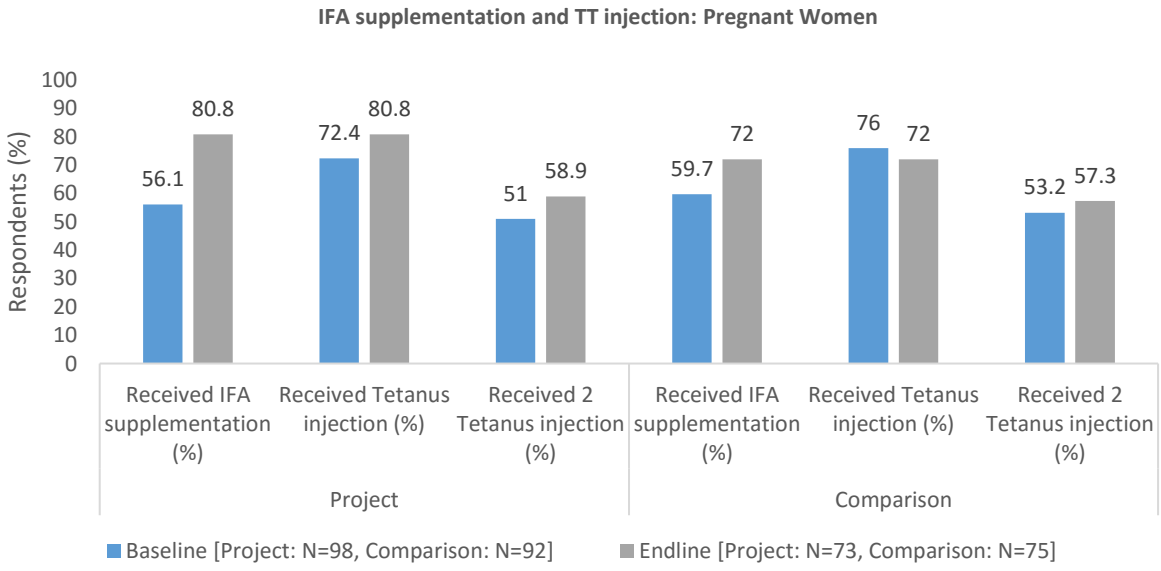
for received IFA supplementation, received 100 IFA tablets and consumed 100 IFA tablets is more in project area compared to comparison area.

Figure 8: IFA supplementation and TT injection: Mothers with children in the age group of less than 6 months



For "pregnant women" in project area the % of respondents received IFA supplementation has increased by 24.7% and % of respondents received 2 TT injection has increased by 7.9%. Similarly, for comparison area the % of respondents received IFA supplementation has increased by 12.3% and % of respondents received 2 TT injection has increased by 4.1%. As can be seen percentage of respondents received IFA supplementation and 2 TT injection were more in project area compared to comparison area.

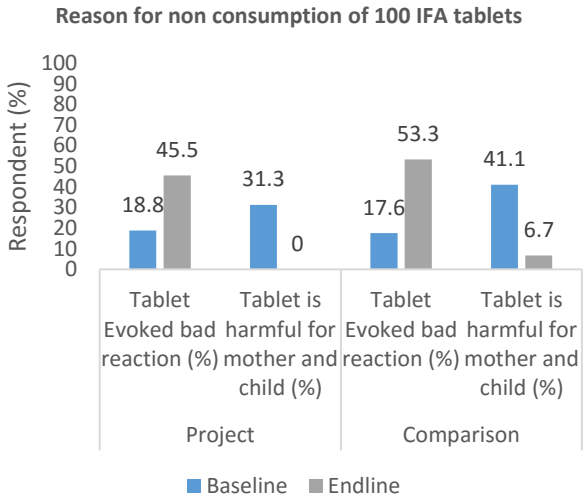
Figure 9 : IFA supplementation and TT injection: Pregnant Women



3.3.3.1 Reason for non-consumption of 100 IFA tablets

Study also tried to capture the reasons for low consumption of 100 IFA tablets. Other studies have shown that the consumption of 100 IFA tablets is low among women.

Figure 10: Reason for non-consumption of 100 IFA tablets



Those respondents who received 100 IFA tablets but did not consume all the tablets where asked about the reason for not consuming the tablets. At end line, the main reason that was quoted for not consuming all tablets was "tablet evoked bad reaction". While, in base-line "tablet is harmful for mother and child" was the most quoted answer. This shows that the perception of respondents towards IFA tablets had changed and now less respondents believed that the tablets are harmful. However, there is a need to increase awareness about benefits and temporary effects due to consumption of tablets.

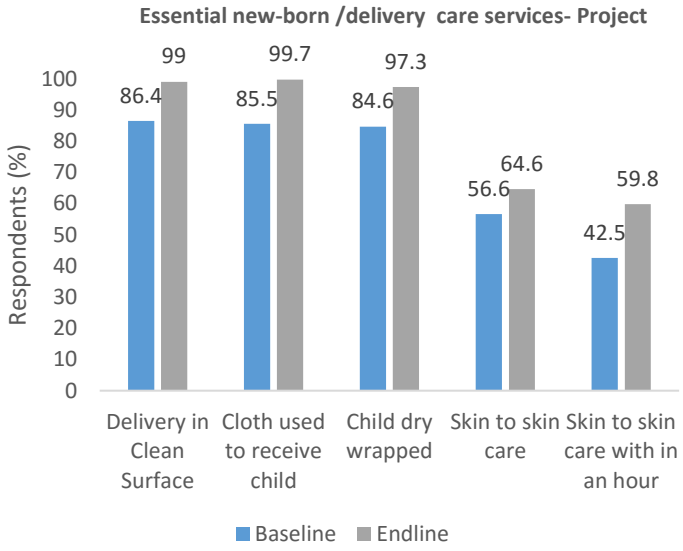
3.4 New born care and Infant & Young Child Feeding practices

A child's risk of dying is highest in the neonatal period, the first 28 days of life. Safe childbirth and effective neonatal care are essential to prevent these deaths. Forty-five % of child deaths under the age of 5 take place during the neonatal period[21]. Also increasing evidence links IYCF practices to undernutrition. The current section describes findings pertaining to child delivery, early new-born care, early and exclusive breastfeeding and government entitlements received for childcare. This information was captured only from "mothers with children in the age group of 0-24 months" category. Comparison has been made between baseline and end line findings. Findings are presented in the following sub-sections.

3.4.1 New born Care

3.4.1.1 Essential new -born mechanism

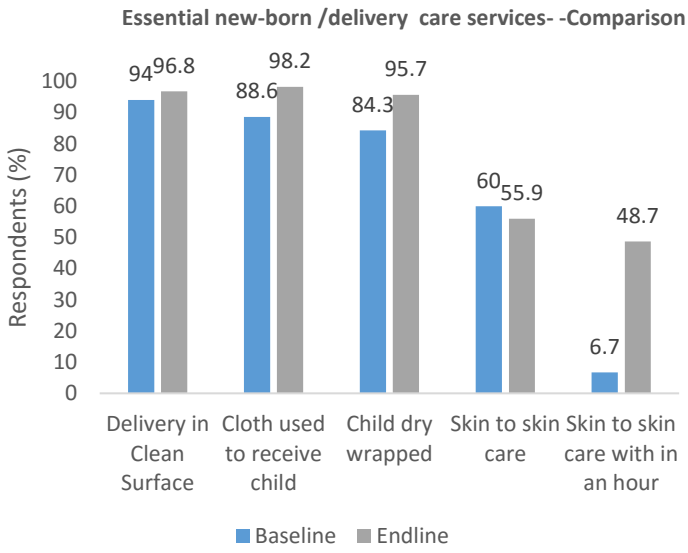
Figure 11: Proportion of respondents reporting proper delivery mechanism: Project



An increase in new born care practices were observed as ref delivered child in clean surface (12.6%), cloth was used to receive child (14.2%), child was, received skin to skin care (8%) and received skin to skin care within an hour (17.3%) during end line compared to baseline in project area.

[21] WHO - http://www.who.int/mediacentre/factsheets/fs178/en/

Figure 12: Proportion of respondents reporting proper delivery mechanism: Comparison

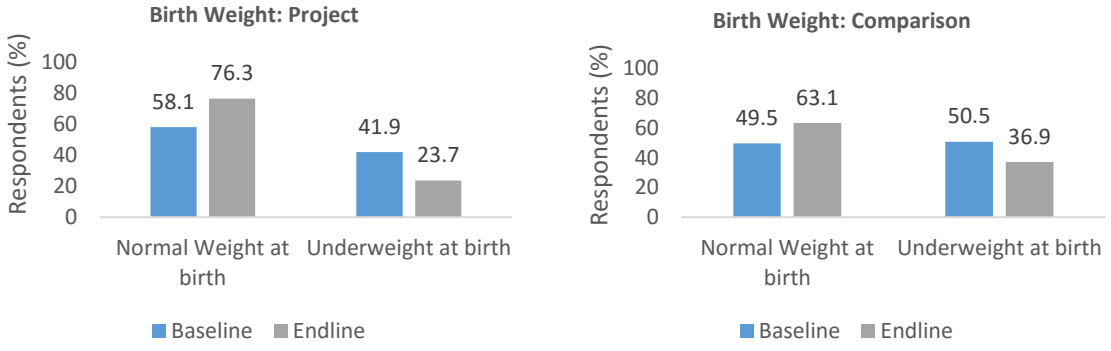


In comparison area, meagre increment has taken place. A slight increase in new born care practices has been observed in delivered child in clean surface (2.8%), cloth was used to receive child (9.6%), child dry wrapped (11.3%), received skin to skin care (-4.1%) and received skin to skin care within an hour (42%) during end line compared to baseline. The increment in the new born care practices (except received KMC within an hour) were more in the project area compared to comparison area.

3.4.2 Birth weight of the new-born

Study has also captured information regarding "weight of the child" and "weight measurement for the first time". For capturing this information, mother and child health card was checked where ever it was available or it was recorded from mother's recall if the card was not available. According to WHO standards, a new born child that weigh at least 2.5 kg are considered to be healthy. Applying this condition, in project area, 76.3% of new born children were found to be healthy during end line, which was higher as compared to baseline (58.1%). At end line prevalence of low birth babies was found to be decreased by 18.2% in project area from baseline. In comparison area, a similar trend was noted for healthy as well as for low birth weight babies, however, prevalence of low birth weight babies was still high (36.9%) at end line in comparison area.

Figure 13: Comparison Birth weight of child in project and Comparison area



3.4.3 Early and exclusive breastfeeding

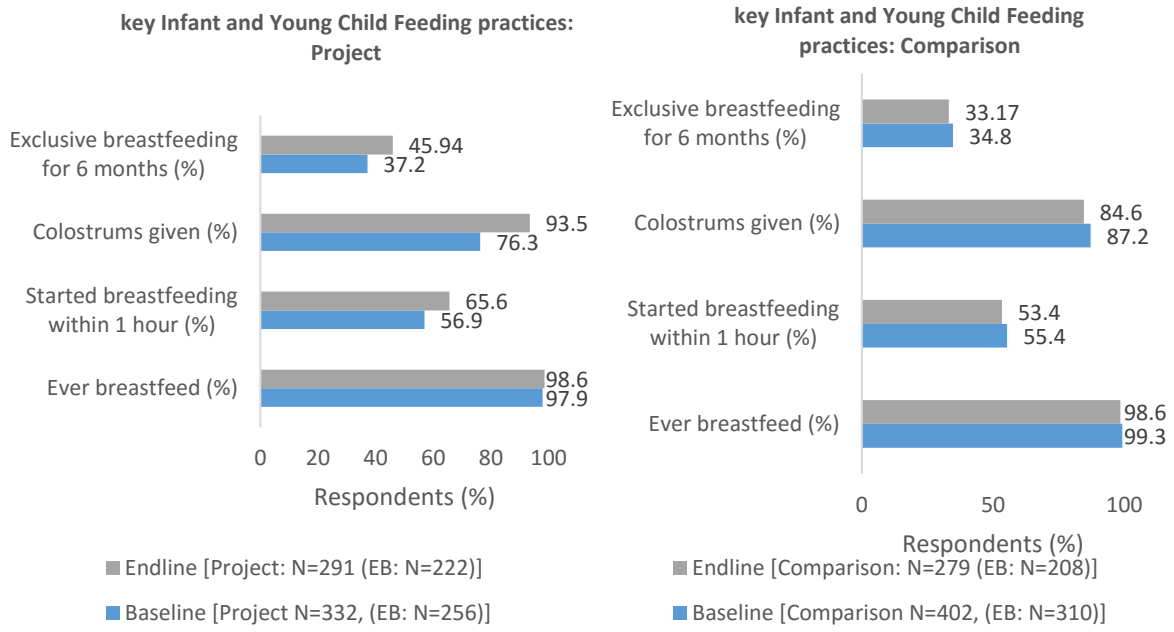
Breastfeeding is the foundation of good nutrition and protects children against disease. In this way, breastfeeding allows all children to thrive and develop to their full potential. Immediate breastfeeding – putting the baby to the mother's breast within an hour after birth – would significantly reduce neonatal mortality[22].

[22] Unicef- http://www.unicef.org/nutrition/index_24824.html

Analysis showed that percentage of children to whom colostrum was given (17.2%), percentage of children who were breastfed within 1 hour (8.7%) and percentage of children who were ever breastfed (0.7%) increased during end line study as compared to baseline values in project area. However, in comparison area values for all these indicators were almost remained same. Details are given in the figure below.

Similarly, in project area 45.94% were exclusively breastfed during end line as compared to base line where findings were 37.2%. In comparison area, value for this indicator has decreased during end line survey as compared to baseline. The increment (10.37%) over the period of three years shows the improvement in IYCF practices in project area which may be due to intervention in the project area. This may have positive implication on malnutrition indicators.

Figure 14: Proportion of respondents following key Infant and Young Child Feeding practices



3.4.3.1 Reasons for not giving breast-milk within one hour of birth

Reason for not breastfeeding within an hour were also ascertained from the respondents. Some of the reasons that were quoted less often during baseline such as “C section” and “Doctor/Nurse/ANM advice” were quoted by relatively more number of respondents during end line. This change is found across both project and comparison area.

Table 21: Reasons for not giving breastmilk within one hour of birth

	Baseline		End line	
	Project	**Control**	**Project**	**Control**
Milk was not available (%)	62.1	79.8	62.9	54.8
Mother Unwell (%)	25.7	12.4	15.5	11.1
Traditional Family Advice (%)	5	5.1	2.1	6.3
Doctor/Nurse/ANM advice (%)	4.3	2.2	7.2	12.7
C Section (%)	3.6	5.1	11.3	7.9

3.4.3.2 Reasons for non-exclusive breastfeeding for six months

The reasons for non-exclusive breastfeeding were also ascertained from all those respondents who did not practice exclusive breast feeding for six months. In project area as well as in comparison area, it was found that the reason “for child’s good health” was quoted by higher percentage (P:28.5%,

C:42.9%) of respondents as compared to baseline which indicates that respondents felt that breastmilk alone may not be sufficient for child's growth. Therefore, more awareness about benefits of breast feeding are required.

Table 22: Reasons for non-exclusive breastfeeding for six months

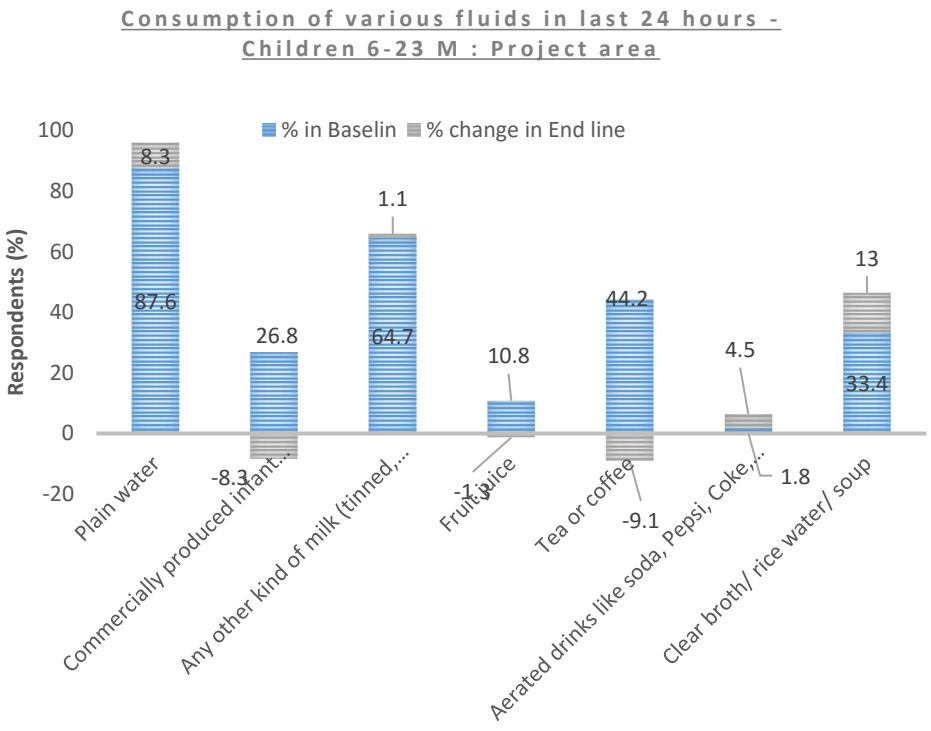
	Baseline		End line	
	Project	Comparison	Project	Comparison
	N=29	N=12	N=22	N=22
For child's good health (%)	3.3	7.1	31.8	50
No breast milk (%)	56.7	85.6	31.8	31.8
Family/traditional advice (%)	3.3	0	9.1	0
Less milk production (%)	26.7	0	18.2	13.6

3.4.4 Complementary Feeding

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. The transition from exclusive breastfeeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world-wide[23].

In project area, 75.2% mothers initiated complementary feeding at the age of six months to their children which is 8.9% higher than baseline. In comparison area only 1.2% improvement has seen from baseline (70.9%) to end line (72.1%).

Figure 15 : Percentage of children in the age group of 6-23 months to whom various drinks have been given over the last 24 hours: Project

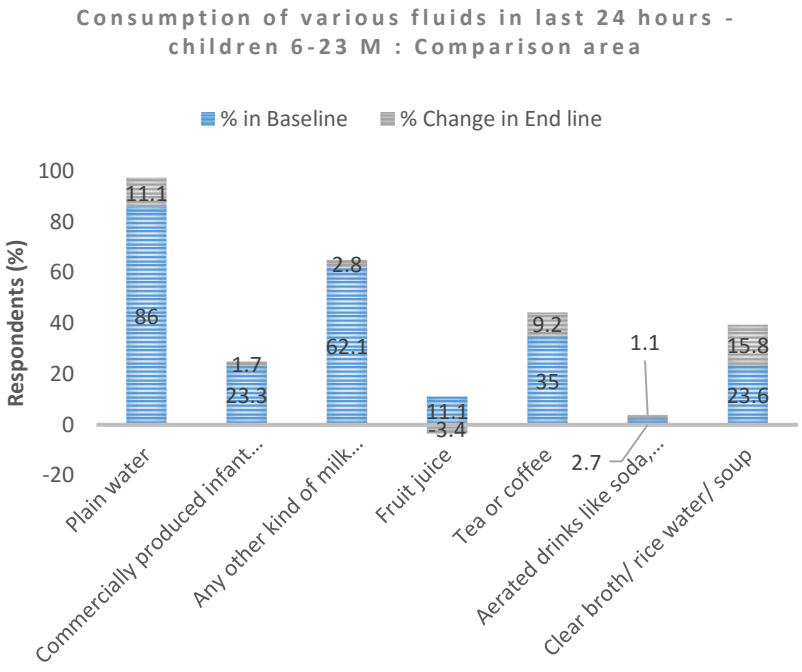


In project area, complementary feeding practices has found to be improved over a period of time in the study group 6-23 months. During end line 46.4% children were given clear broth/ rice water/ soup during last 24 hours as compared to baseline where only 33.4%

[23] WHO - http://www.who.int/nutrition/topics/complementary_feeding/en/

children were given clear broth/ rice water/ soup during last 24 hours in project area.

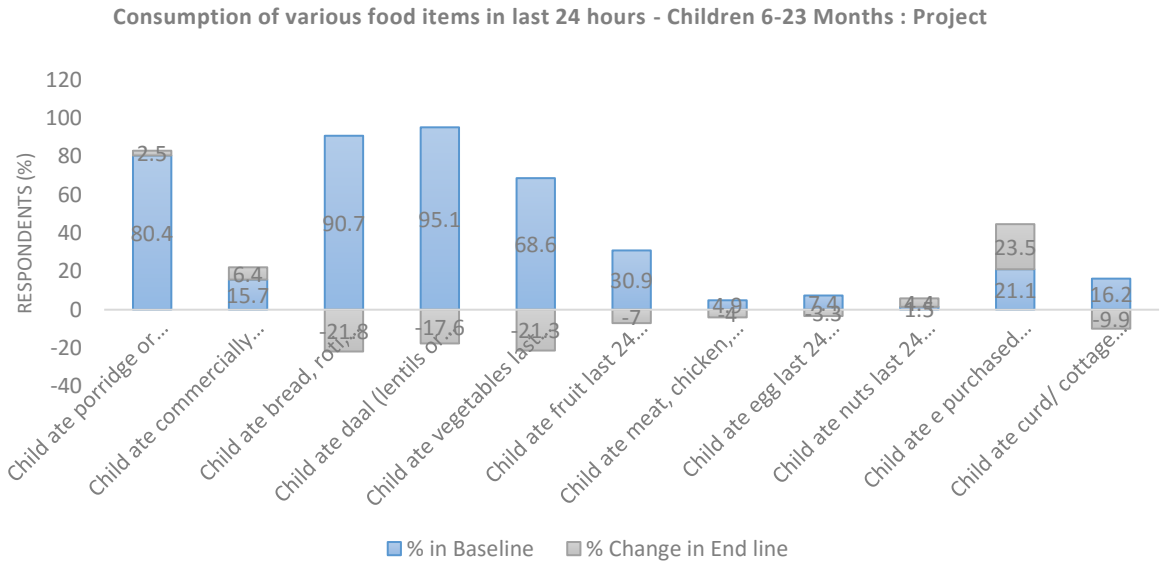
Figure 16 : Percentage of children in the age group of 6-23 months to whom various drinks have been given over the last 24 hours: Comparison



However, consumption of drinks like tea or coffee, other kind of milk was also found to be high. These drinks are not considered healthy for children as these liquids and the utensils used for handling them are difficult to keep clean and can carry infections such as diarrhoea to the child. Most liquids other than breastmilk contain inadequate amounts of nutrients and fill up the child's stomach without providing adequate nutrition.

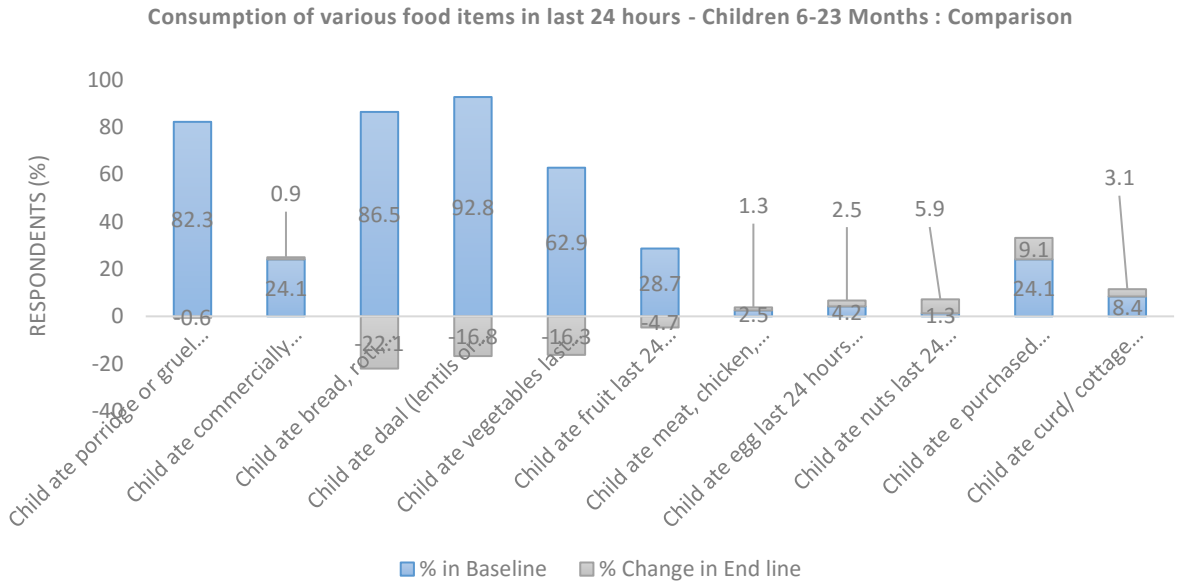
Similarly, information was also gathered on food items given to the children during last 24 hours. In project area consumption of porridge has increased by 2.5% and commercially fortified food has increased by 23.5%. While, consumption of other food items such as bread, dal, vegetables and fruits has decreased. The nutrient requirement of the child increases after six months of age as growth continues and the size of the body increases. More energy and nutrients are needed for both growth and development. If children are not provided with adequate quantity and quality of complementary foods they become undernourished.

Figure 17: Percentage of children in the age group of 6-23 months eating various food items in the past 24 hours: Project



In comparison area consumption of fortified food has increased by 0.9%. While consumption of other food items such as breads, daal, vegetables and fruits has decreased.

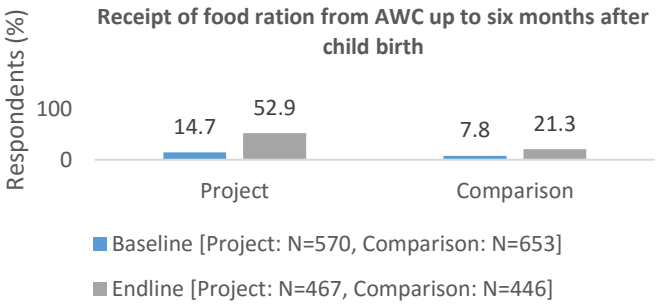
Figure 18: Percentage of children in the age group of 6-23 months eating various food items in the past 24 hours: Comparison



3.4.5 Access to government's food support programme

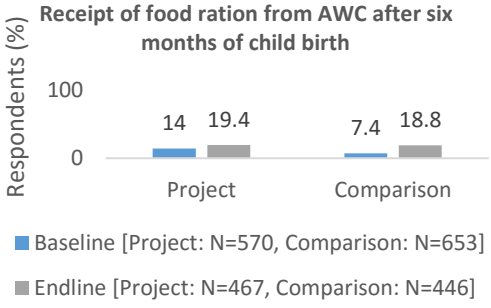
The Supplementary Nutrition is one of the six services provided under the Integrated Child Development Services (ICDS) Scheme. Project Kaurna has supported the frontline workers i.e. ASHA and AWW in better service delivery including distribution of supplementary foods to pregnant women, lactating mother and children below 6 years.

Figure 19: Receipt of food ration from AWC up to six months after birth



The percentage changes in both project and comparison area are found to be 38.2% and 13.5% in the end line. As can be noted percentage increase in project area is more than comparison area. Which represent the increased level of awareness among residents of project area and increased efficiency of FLWs.

Figure 20: Receipt of food rations from AWCs after six months of child birth



Study also tried to capture the receipt of food ration after six month of child birth. The percentage changes in both project and comparison area are found to be 5.4% and 11.4% in the end line. As can be noted percentage increase in comparison area is more than project area.

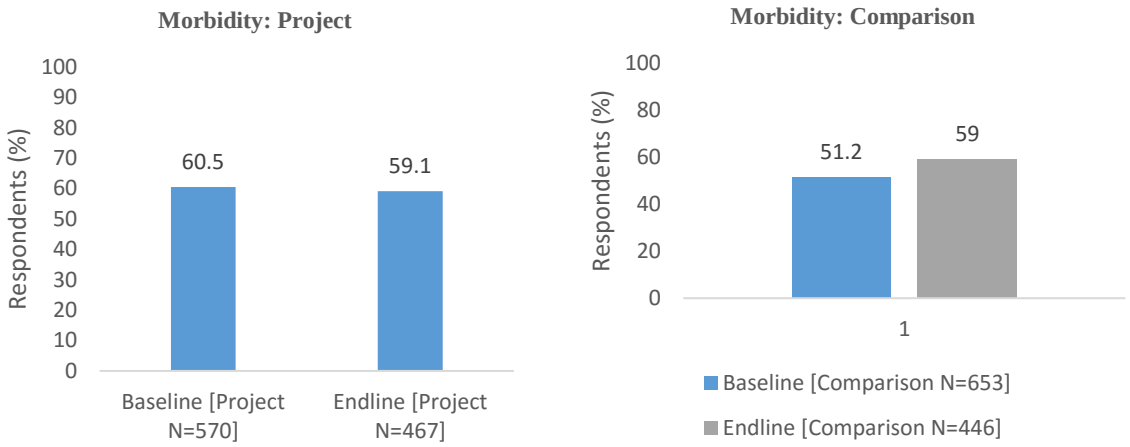
3.5 Child health, Awareness about Malnutrition and Child Vaccination

This section describes findings related to child health. This section has been categorised into the following sub-sections: diseases children suffer from, feeding practices during illness, child vaccination and malnutrition.

3.5.1 Child health problems and health facilities accessed

Growing evidences suggest that constant exposure to germs and bacteria cause divert of energy and nutrient away from the growth and brain development to fighting survival[24]. Study has tried to capture the percentage of children fallen ill over last three months. In project area percentage of respondents fallen ill over last three months were decreased by 1.4%. While in comparison area percentage of respondents fallen sick has increased by 7.8%. The differential estimate tells us that the effect of intervention, may have led to a positive change on this variable by 9.2%. This could be because in project block more number of households were practicing exclusive breastfeeding and other IYCF practices. In addition to this, in project area more number of households had access to improved sanitation facilities, safe drinking water sources.

Figure 21 Percentage of children in the age group of six to 59 months who have fallen ill over the last three months



Association between caste and morbidity was also computed. In project area, incidence of illnesses over the past three months has decreased for SC, ST and OBC castes by 1.3%, 23.3% and 2.9% respectively in end line. However, for general caste value of this indicator has increased by 3.3% in endline.

Table 23: Percentage of children, by caste, in the age group of 6-59 months who have fallen ill over the past three months

Background characteristics		Baseline			End line	
		Type of block	Has the child fallen ill over the last 3 months (%)	N	Has the child fallen ill over the last 3 months (%)	N
Caste	General	Project	50.6	83	53.9	102
	SC	Project	64.3	143	63	146
	ST	Project	50	12	26.7	15
	OBC	Project	64.2	332	61.3	204

[24] Pulitzer center on crisis reporting, the link between sanitation and malnutrition

Percentage of children who suffered from jaundice, typhoid, pneumonia and diarrhea have decreased by 2.7%, 0.606%, 4.5% and 7.3% respectively in end line for project area. Similarly, for comparison percentage of children suffered from area jaundice, typhoid, pneumonia and diarrhea have decreased by 4.2%, 0.6%, 3.7% and 4.5% respectively in end line. However, incidences of malaria, cough and cold and fever have increased in end line for project as well as comparison. This could be because this study was conducted during rainy season. The percentage change in incidence of diarrhea is more in project area compared to comparison area which might have reduced the incidence of malnutrition in project area.

Qualitative findings on child illnesses

Diarrhoea, fever and cold are the most common child illness discussed during FGD. In some places women reported pneumonia also. Most preferred hospital facility for treatment is PHC at few places private facilities.

"Generally, child suffer from cough and cold and fever, for treatment we go to PHC".....FGD 204

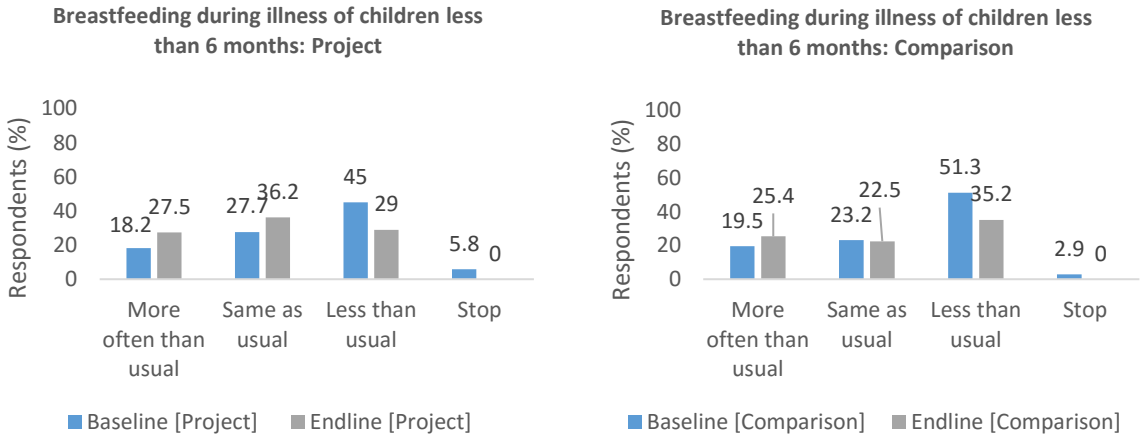
Table 24 Percentage of children in the age group of 6 - 59 months who suffered from various illnesses in the last three months

Health Morbidity	Baseline		End line	
	Project (N=651)	Comparison (N=742)	Project (N=467)	Comparison (N=446)
	(%)	(%)	(%)	(%)
Jaundice	4.1	6.5	1.4	2.3
Typhoid	2.06	2.1	1.4	1.5
Diarrhoea	25.8	31.8	18.5	28.1
Pneumonia	13.6	9.4	9.1	4.6
Malaria	3.3	2.3	3.6	3
Cough and cold	24	30.7	32.2	40.3
Fever	82.2	87.6	86.2	89.9

During the weaning period i.e from six months to two years of age, young children often suffer from infections like diarrhea, measles, cold, cough etc. If their diet had been adequate, their symptoms are usually less severe than those in in an undernourished child. A sick child needs more nourishment to fight infections without using up nutrient reserves of his body.

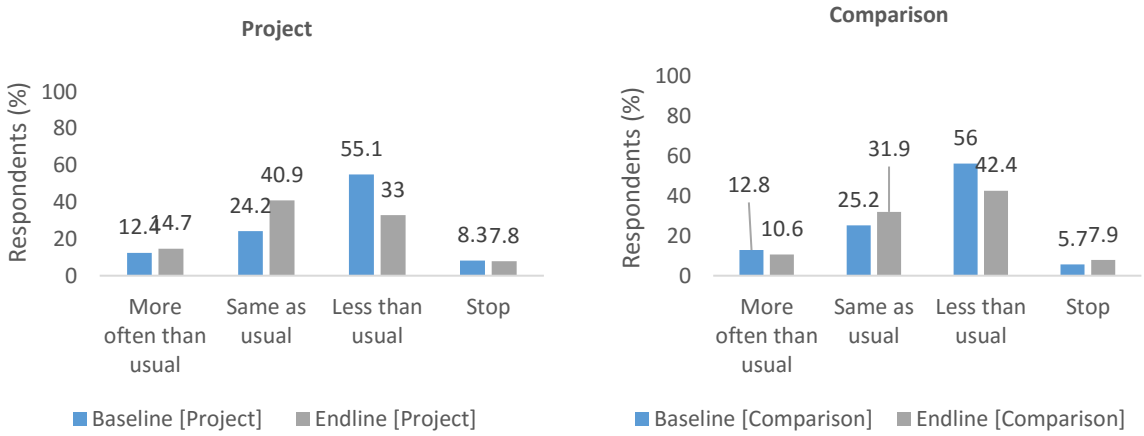
Study also captured information on feeding practices of mothers when their child became ill. In both project and comparison areas, percentage of women who had breastfed "less than usual" was decreased during end line. The percentage of women who had breastfed "more than usual" and "same as usual" were found to be increased by 9.3% and 8.5% respectively in project area during end line. It was found that no respondents stopped breast feeding their child during illness in project and comparison area during end line. Which is a good practice because till six months of age only breast milk should be fed to child. This could have resulted in increased practice of exclusive breast feeding.

Figure 22: Breastfeeding during illness of children less than 6 months



In study group of children in the age between zero to fifty-nine across, the percentage of respondents who continued to feed same amount of diet to children have increased in both project and comparison during end line. While, just opposite was true for "less than usual" in project and comparison during end line.

Figure 23: Child feeding practices during illness among mothers with children in the age group of 0 – 59 months



3.5.2 Awareness about Malnutrition and Health Facilities

The lack of awareness among rural mothers is one of the contributing factor for increased malnutrition levels. Mothers were enquired about the symptoms of Malnutrtion. Analysis reads that awareness about symptoms of malnutrition has increased for project and comparison areas in endline. At project area during endline percentage of respondents knew about wasting as a symptom of malnutrition has increased by 50.1%. Similarly, percentage of respondents knew underweight as a symptom of malnutrition has increased by 34.3%. While in comparison area, percentage of respondentsa know wasting as a symptom of malnutrition has increased by 48.6% percentage of respondents know underweight as a symptom of mlnutrition has increased by 33.6%. Similar trend has been observed for other indicators also during enline for project and comparison. However, the percentage increase in the knowledge about malnutrition is more in project area compared to comparison area.

Table 25 Awareness about symptoms of malnutrition

	Baseline		End line	
	Project Block (N=822)	Comparison Block (N=892)	Project Block (N=536)	Comparison Block (N=517)
	(%)	(%)	(%)	(%)
Wasting	11.5	8.7	61.6	57.3
Stunting	6.6	4.1	17.2	13
Underweight	5.3	3.6	39.6	36.9
Fatigue	4.5	3.2	13.8	10.3
Anaemia	1.1	1.2	14.9	8.9
Illness	4.2	2.5	15.1	11.8
Mental Weakness	3.7	1.7	15.5	12

Qualitative findings on awareness about malnutrition

In Pindra, malnutrition known as **"Sukhandi"** in local language. Underweight ("vajan kam hona) and wasting (bacha sukh gya hai" are the common symptoms reported by the women respondents in qualitative assessment. Along with this weakness, being ill most of the time are other symptoms reported in the FGD iscussion with women.

"If a child is suffering from malnourishment then his/her weight, height and thickness of body are not according to his/her age."….FGD 204

"Malnourishment happen due to lack of diet along with diseases."…..FGD 206

3.5.3 Child Vaccination

Childhood vaccination can prevent deaths in children from many diseases and can also affect children's nutritional status and lead to improved child growth. It was observed that fully immunized children had better nutrition status. Significant association was found with immunization status of the pre-school child with underweight, also, it was found majority of children were malnourished and most of them were unimmunized[25].

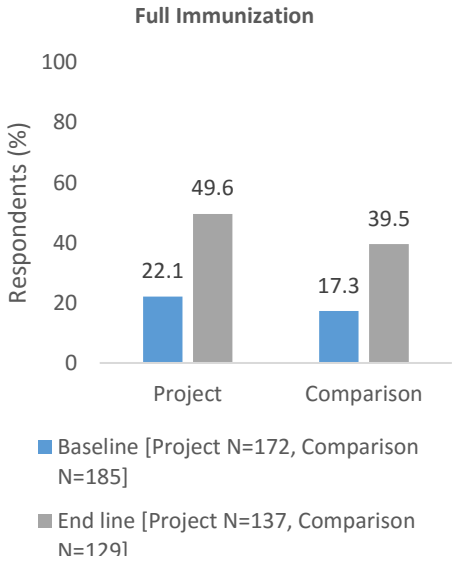
In the present study, child vaccination data were collected through child vaccination card. The table below provides details on vaccination statistics for children of age 12 to 23 months. In project block all respondents received at least one vaccine. Percentage of children who have received BCG vaccine, 3 doses of DPT, 3 doses on polio, measles and hepatitis vaccine have increased by 10.7%, 37.7%, 4.7%, 52.9% and 47.6% in end line for project. While in comparison area percentage of children who have received BCG vaccine, 3 doses of DPT, 3 doses on polio, measles and hepatitis vaccine have increased by 4.2%, 34.5%, 2.1%, 59.6% and 49.9% in end line. The increase in respondents who received BCG, three dose of Polio and three doses of DPT vaccines were more in project area compared to comparison area. This increase in immunization may have a positive impact on nutritional status of study group in project area. Children between the age of 9 to 59 months received any vitamin A doses has increased in project (47.6%) as well as comparison (49.9%) area in end line from baseline.

[25] The effect of vaccination on nutritional status of pre-school children in rural and urban Lucknow

Table 26 Child vaccination data

	Baseline		End line	
	Project Block (%) (N=172)	**Comparison (%) (N=185)**	**Project (%) (N=137)**	**Comparison (%) (N=129)**
Children in the age group of 12-23 months who have not received any vaccination	4.1	1.6	0	5.4
Children in the age group of 12-23 months who have received BCG vaccine	53.5	47	64.2	51.2
Children in the age group of 12-23 months who have received 3 doses of DPT vaccine	44.8	36.8	82.5	71.3
Children in the age group of 12-23 months who have received 3 doses of polio vaccine	47.1	40.5	51.8	42.6
Children in the age group of 12-23 months who have received measles vaccine	44.2	30.3	97.1	89.9
Children in the age group of 12-23 months who have received Hepatitis B vaccine	48.8	43.9	96.4	93.8
Children (age 9 months and above) received at least one dose of Vitamin A	27.3	19.5	86.3	73.7[26]

Figure 24: Percentage of fully immunized children



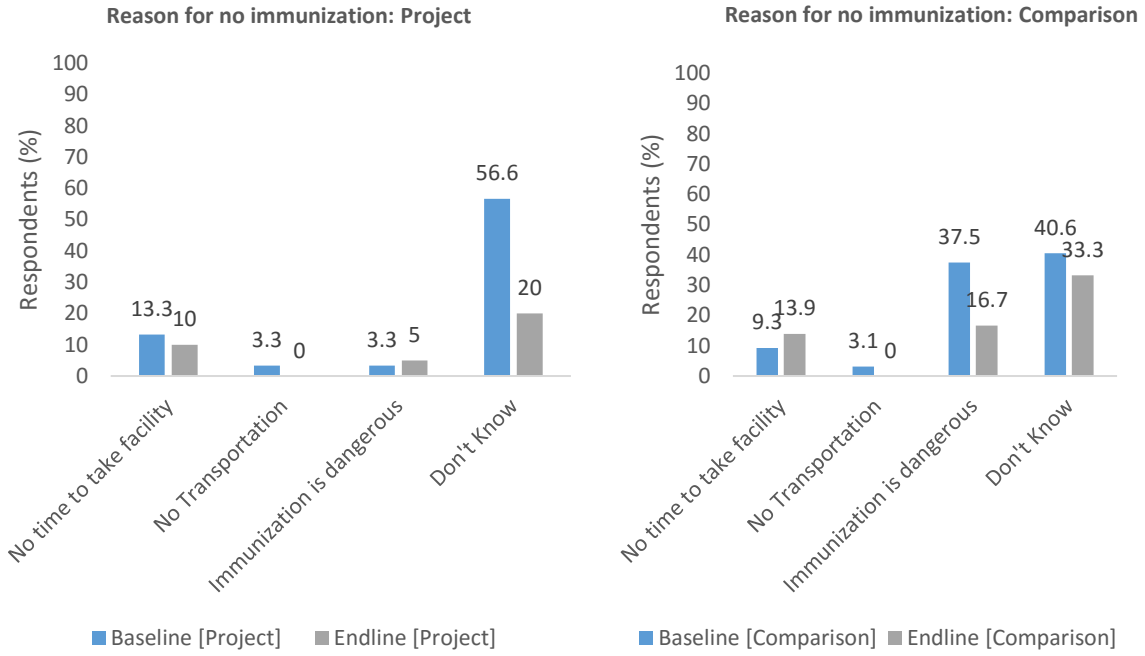
The percentage of fully immunized was increased by 27.5% in project area during end line. While in comparison area it has increased by 22.2% during end line. The 5.3% percentage change happened in the project area which could be attributable to intervention. This change may have positive impact on the malnutrition indicators in project area.

3.5.3.1 Reason for no immunization

Reason for not getting child immunized was ascertained from all those respondents who did not receive any single vaccine. Information was gathered from mother of child age between 0 to 59 months. In project area, during end line it was found that all those reasons that were prevalent during baseline such as "don't know/no time to take facility/no transportation have declined. However, value of misbelieves has increased (Immunization is dangerous) in project area.

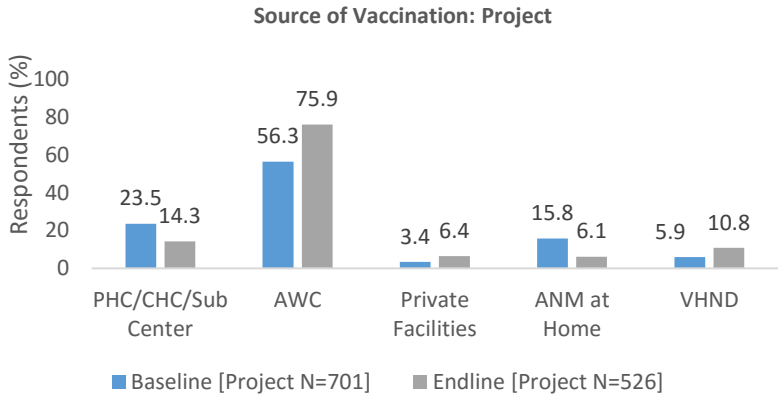
[26] The sample size for Children (age 9 months and above) received at least one dose of Vitamin A during end line was (Project=438, Comparison=414)

Figure 25: Reason for no immunization



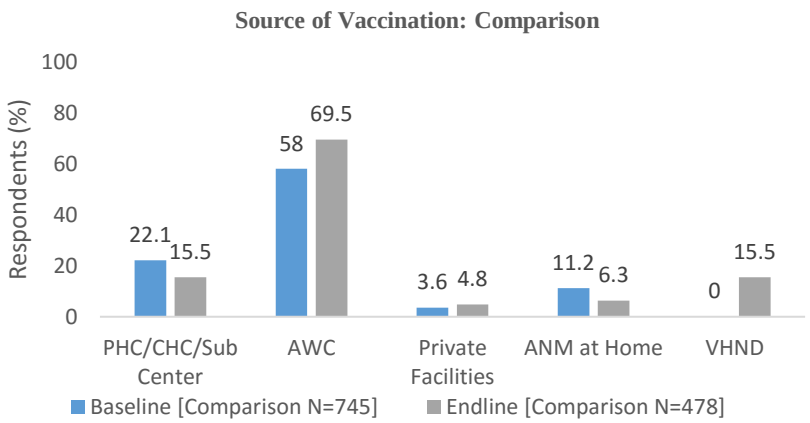
3.5.3.2 Source of vaccination:

Figure 26 Source of vaccination: Project



In project area, respondents who have received vaccinations from VHND and AWW were found to be increased. One of the reason behind this could be effective functioning of village level institutions because similar trends have been observed for the indicators related to village institution delivery.

Figure 27: Source of vaccination: Comparison



Similarly, comparison area followed similar trend that was observed in project area, however change in number of respondents availed vaccination through AWC was lower as compared to project area.

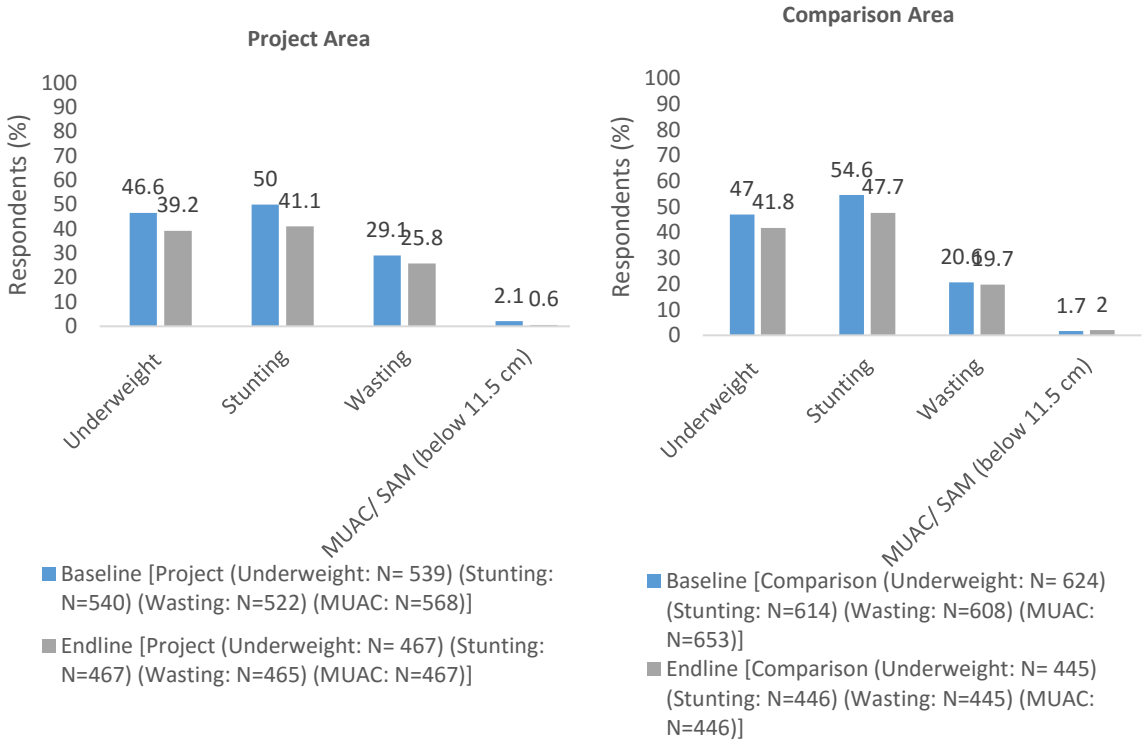
3.5.4 Status of Malnutrition

The World Bank estimates that India is one of the highest ranking countries in the world for the number of children suffering from malnutrition. In India 44% of children under the age of 5 are underweight.

The current chapter describes the status of malnutrition through wasting, stating, underweight and SAM indicators. For calculation purpose, height, weight and MUAC were measured of all children in the age between 6 to 59 months. The collected data was analysed using WHO Anthro software to generate the WAZ, HAZ, and WHZ scores. These scores were used for estimating the level of underweight, stunted and wasted children respectively. Comparison has been made from baseline and end line values.

3.5.4.1 Malnutrition level among children in age group of 6-59 months

Figure 28: Overall malnutrition level among children in age group of 6-59 months: Project



In end line all the indicators pertaining to malnutrition were decreased. Wasting, stunting, underweight and SAM have decreased by 3.3%, 8.9%, 7.4% and 1.5% respectively during the period of three years. This was expected to happen because the morbidity incidences were decreased (diarrheal incidences happened in past 3 months and pneumonia incidence happened in past 3 months were decreased compare to baseline). This coupled with improved IYCF practices, sanitation facilities and water sources may have played a critical role in improving nutritional status of children. In comparison area, underweight, stunting and wasting were decreased by 5.2%, 6.9% and 0.9% respectively over the period of three years. However, SAM incidences were increased by 0.3%. This could be because in comparison area morbidity rates was increased which might have impacted the number of SAM cases in comparison area. The differential estimate tells us that the effect of intervention, has led to a positive change on the impact variable i.e. wasting, stunting, underweight and MUAC levels of children in project area has differentially decreased by 2.5, 2.1, 2.2 and 1.8 units

respectively from project to comparison over a period that stretched from baseline to end line. But, this change is found to be statistically insignificant at 95% confidence level [27]due to low sample size.

3.5.4.2 Distribution of malnutrition values by Demographic categories

Study tried to explore the association between gender and malnutrition indicators. It was found during end line for male children suffering from underweight, stunting, wasting and SAM has decreased by 11.3%, 10.5%, 2.3% and 1.9% respectively in project area from baseline. While in comparison area for male children suffering from underweight, stunting, wasting and SAM has decreased by 11.3%, 8.4%, 0.7% and 0.4% respectively from baseline. Similarly, in end line percentage of female children suffering from underweight, stunting, wasting and SAM has decreased by 2.5%, 6.6%, 5.1% and 0.7% in project area from baseline. While, percentage of female children suffering from stunting and wasting has decreased by 5.6% and 1% in comparison area from baseline. However, percentage of female children suffering from underweight and SAM has increased by 1.1% and 1.2%. Analysis shows that less percentage of male children are now suffering from malnutrition compared to female in project as well as comparison area. No SAM cases identified for male living in project area while SAM cases has identified in comparison area. Similarly, for female living in project area, cases of SAM has decreased compared to baseline while just opposite happen in comparison area.

Table 27: Distribution of malnutrition figures by gender categories in project and comparison area's

Background Characteristics		EVLAUTION Phase	Underweight (%)		Stunted (%)		Wasted (%)		SAM (MUAC<11.5) (%)		N	
			P	C[28]	P	C	P	C	P	C	P	C
Gender of children in 6 months to 59 months of age	Male	Baseline	50.3	52.9	50.6	59	29.5	20.9	1.9	1.2	314	330
		End line	39	41.6	40.1	50.6	27.2	20.2	0	0.8	277	243
	Female	Baseline	42	41	49.2	50	28.7	20.3	2.3	2.2	262	325
		End line	39.5	42.1	42.6	44.4	23.6	19.3	1.6	3.4	190	203

Study tried to capture the association between malnutrition indicators and background characteristics in project area. Values of malnutrition indicators have reduced over the period of three years for all caste categories. Only the rates of underweight in ST category (53.4%), values of SAM (6.7%) in ST categories were found to be higher than base line values.

Further comparative analysis of religion categories and malnutrition indicators reads the reduction in malnutrition values among Hindu respondent's from baseline. When compared to literacy levels of the respondents to Malnutrition indicators (Underweight and Stunted) the values are higher among illiterate respondents than literate respondents in end line. Similar trend could be seen among the respondents of with no schooling and with schooling in end line. Respondents falling under highest wealth index quintile have shown a reduction in values of malnutrition than lowest quintile in end line.

[27] P value for Wasting stunting underweight and SAM were 0.5, 0.608, 0.623 and 0.109 respectively.
[28] P refers to project area of study and C refers to comparison area of study.

Table 28 : Distribution of malnutrition figures by selected background characteristic of mothers in project block of U.P.

Background Characteristics		EVLAUTION Phase	Underweight (%)	Stunted (%)	Wasted (%)	SAM (MUAC<11.5) (%)	N
Caste	General	Baseline	57.3	42.5	36.3	2.3	80
		End line	31.3	35.3	20.6	0	102
	SC	Baseline	44.8	46.2	32.2	0.7	143
		End line	41.1	45.9	25.5	0.7	146
	ST	Baseline	41.7	70	40	0	10
		End line	53.4	46.7	33.3	6.7	15
	OBC	Baseline	54.1	52.6	34.3	2.8	328
		End line	40.7	40.2	28.1	0.5	203
Religion	Hindu	Baseline	51.9	50.2	34.3	1.8	528
		End line	36.5	40.7	25.5	0.7	433
	Muslim	Baseline	48.4	35.5	29	5.9	31
		End line	35.4	45.4	27.2	0	33
Literacy	Literate	Baseline	55.1	49.1	36.4	1.9	352
		End line	37.1	39.7	25.9	0.8	370
	Illiterate	Baseline	45.9	49.8	30	2.3	207
		End line	47.5	46.4	25.7	0	97
Years of Schooling	More than 10 years	Baseline	57	51.1	37.9	1.9	190
		End line	35.2	36.3	27.2	0.8	259
	Less than 10 years	Baseline	51.6	47.4	35.1	1.9	154
		End line	42	49.1	22.5	0.9	112
	No Schooling	Baseline	46.5	49.3	28.8	2.3	215
		End line	46.9	44.8	26.1	0	96
Wealth Index Quintile	Highest	Baseline	51.8	48.6	34.4	0	105
		End line	31.4	34.6	24.2	0	153
	Second	Baseline	49.6	45.9	28.1	2.5	111
		End line	36.3	35.2	27.5	0	91
	Middle	Baseline	46	57.4	33.9	5.2	108
		End line	43.2	42	30	0	81
	Fourth	Baseline	62.4	47.7	36.2	1.7	109
		End line	44.2	50.6	26.6	3.2	95
	Lowest	Baseline	47.2	47.6	35.2	0.8	126
		End line	53.2	53.2	19.1	0	47

Qualitative findings on changes in malnutrition among children

Beneficiaries: Most of the rural mothers who participated in FGD's had positively indicated the reduction in malnutrition in children below 5 years in their respective villages. They further attributed the reason for such reduction to increased level of following IYCF practices, service of front line workers, awareness about malnutrition and nutrition counsellors.

"Five years ago, new-born was not fed mother milk for initial three days but now child fed mother milk from first day onwards. Because of mother milk child remain healthy which leads to reduction in malnutrition cases"….FGD 206

"Karuna workers go home to home for identifying malnourished child and provide counselling on food practice also, they take child to government hospital for treatment. This led to reduction in rate of malnutrition".....FGD 208

"Karuna workers go home to home for identifying malnourished child and provide counselling on food practice also, they take child to government hospital for treatment. This led to reduction in rate of malnutrition".....FGD 208

Frontline workers: Most of the AWW and ASHA workers who participated in in-depth interview acknowledged that they have noticed the reduction in number of malnourished children in their village. They have also mentioned the role of karuna project in creating awareness and NC's services in identifying the SAM children and treatment.

"Yes, there is a reduction in malnutrition after implementation of project Karuna. This is because Karuna workers go door to door and tried to create awareness about the importance of immunization also provide medicines to cure child at door step."…..AWW 202

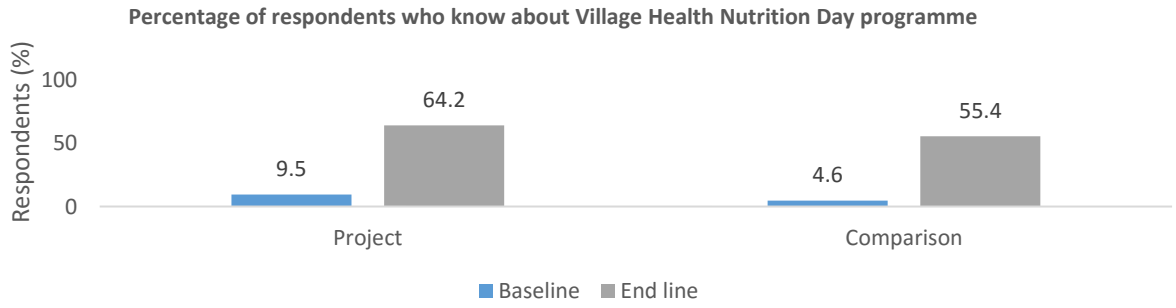
"yes, there is a reduction in malnutrition after implementation of project Karuna. This is because awareness about malnutrition and food supplementation has increased, now residents take food supplementation and more number of residents now practice IYCF practices….ASHA 206

3.6 Village Health Nutrition Day programme

The current section describes all the indicators pertaining to VHND programme. Information was gathered from both categories i.e. mothers with children in the age group of 0-59 months and pregnant women. Comparison has been made baseline values and end line values. This section is categorised into the following sub-sections.

3.6.1 Conducting of VHNDs

Figure 29: Percentage of respondents who know about Village Health Nutrition Day programme



The percentage of respondents who knew about VHND has increased by 54.7% project while in comparison block it has increased by 50.8% from baseline. The percentage increase in project block was relatively higher as compared to comparison block. This was expected in project block as other indicators related with village institutions performed well in project block during end line. Under project Karuna focus was given on improving services at VHND and awareness generation which may have contributed in increase in knowledge about VHND.

Figure 30: Frequency of Village Health Nutrition Day programme: Project

Very high proportion of respondents reported "once in a month" occurrence of VHNDs in Pindra during end line. The value has increased from BL:38.6% to EL: 79.9%. This improvement might have affected positively on nutritional status and morbidity incidences in project block.

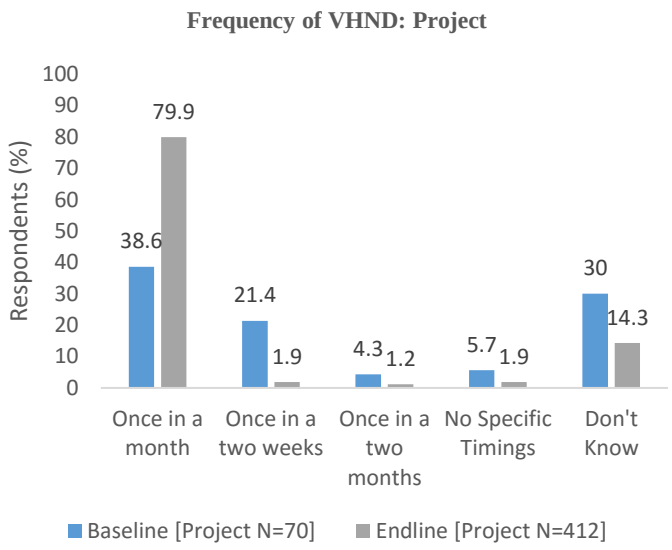
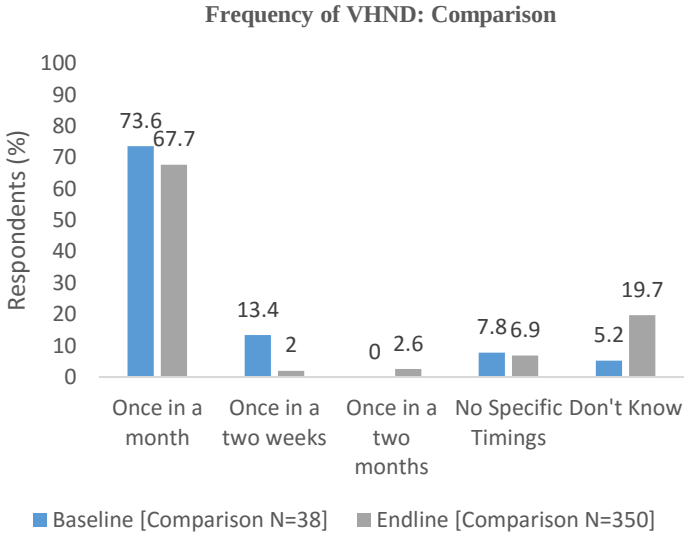


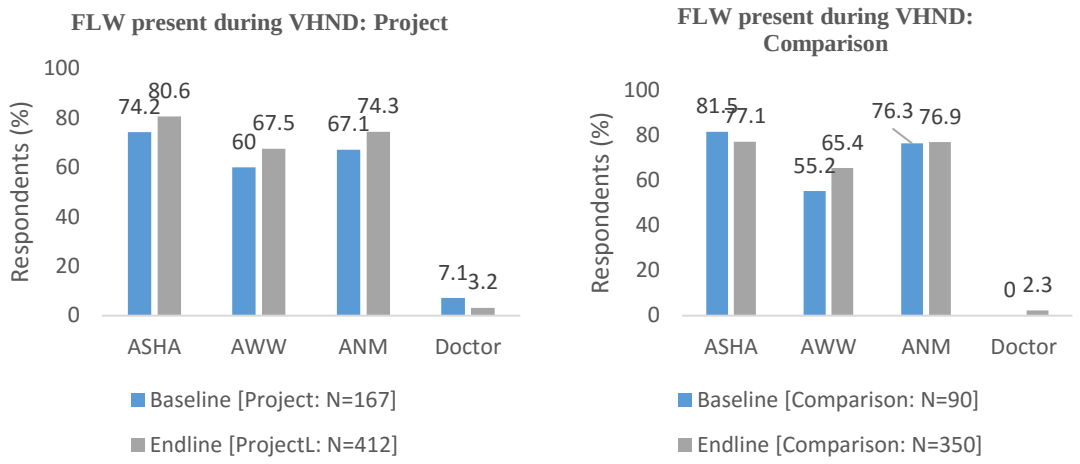
Figure 31: Frequency of Village Health Nutrition Day programme: Comparison

Contrary to project block in comparison block, less proportion (67.7%) of respondents reported "once in a month" occurrence of VHND compared to baseline (73.6%).



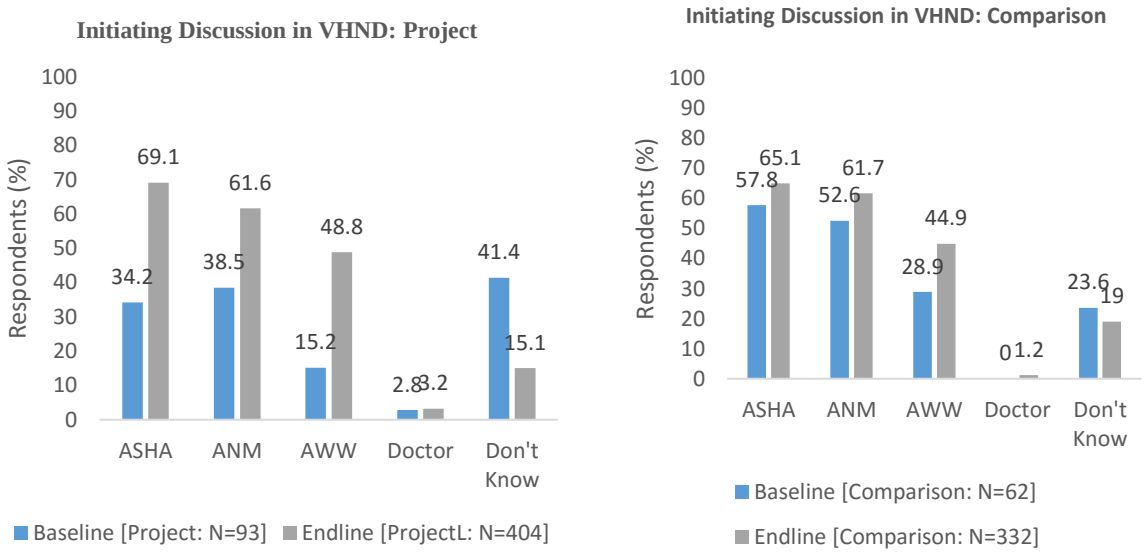
In project area, "presence of all FLWs" that is ASHA, AWW and ANM" was found to be increased by 6.4%, 7.5% and 7.2% respectively during end line compared to the baseline. This could be the result of focus on improving interdepartmental convergence and coordination between frontline workers under project Karuna. In comparison area situation was almost remained similar to baseline.

Figure 32: Percentage of respondents saying about who is present during Village Health Nutrition Days



In the project block, "initiating discussion in VHNDs by ASHA, AWW and ANM" has increased by 34.9%, 23.1% and 33.3% respectively in end line from baseline. Similar, trend followed in comparison block in end line, however, percentage increase in project area was more compared to comparison area.

Figure 33: Percentage of respondents reporting about various officials conducting discussions in VHNDs



3.6.2 Services given under Village Health Nutrition Day programme

TT immunization, child immunization, take home ration and antenatal care services offered by VHND has increased by 16.6%, 1%, 29.3% and 19.6% respectively in project area from baseline. While, in comparison area TT immunization, child immunization, take home ration and antenatal care services offered by VHND has increased by 14.7%, 31.1%, 4.2% and 8% respectively from baseline.

Table 29: Percentage of respondents reporting various services given under Village Health Nutrition Day scheme

	Baseline		End line	
	Project (N=70)	Comparison (N=38)	Project (N=412)	Comparison (N=350)
	(%)	(%)	(%)	(%)
Pregnancy Registration	65.6	65.7	45.1	45.4
TT Immunization	41.4	34.2	58	48.9
IFA Tablets for Pregnant Women	24.2	21	21.4	20
Child Immunization	58.5	28.9	59.5	60
Take Home Ration	10	18.4	39.3	22.6
Antenatal Care	7.1	15.7	26.7	23.7

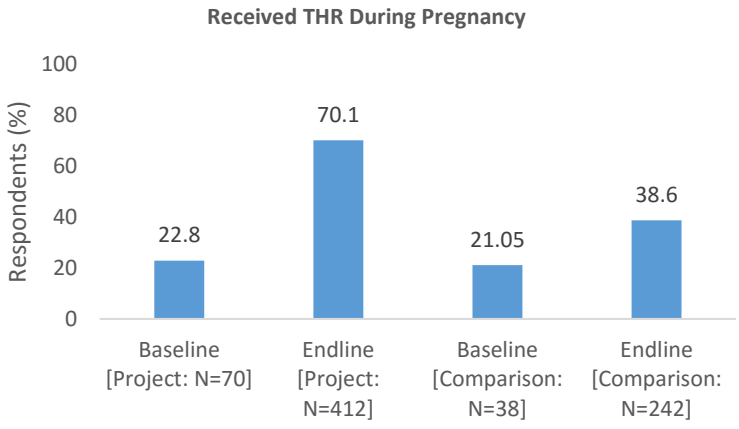
In addition to this, the discussions on important topics such as immunization, ANC and breastfeeding in VHND were increased in project as well as comparison area during end line from baseline. These indicators play vital role in reduction of malnutrition in children. However, the increment in these indicators was meagre. This could be a one front were more work should be done.

Table 30: Percentage of respondents reporting major discussion topics under Village Health Nutrition Day programme

	Baseline		End line	
	Project (N=70)	Comparison (N=38)	Project (N=412)	Comparison (N=350)
	(%)	(%)	(%)	(%)
Importance of ANC	7.1	13.1	14.6	15.1
JSK/JSSK/ Other Scheme	24.2	50	25	22.3
Immunization	22.8	26.3	38.6	35.4
Breastfeeding	7.1	2.6	9	10.6
Family Planning	7.1	2.6	3.4	1.4

Take Home Rations under Village Health Nutrition Day Programme

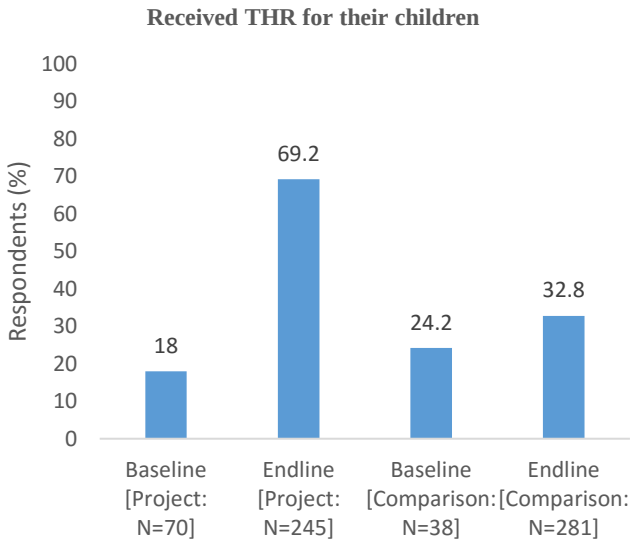
Figure 34: Percentage of respondents reporting receipt of THR during pregnancy under VHND programme



For project block percentage of respondents who received THR during pregnancy has increased by 47.3% in end line from baseline. While, in comparison percentage of respondents who received THR for their children has increased by 17.55% in end line from baseline. Percentage change in beneficiary was more in project compare to comparison. The differential

value estimated is 29.8% which is significant and could be attributable to intervention[29]. This could be because of institutional strengthening and awareness in residents emphasized under project Karuna in project area (DID: 29.8%, p=0.002).

Figure 35: Percentage of respondents reporting receipt of THR for their children under VHND programme



For project block percentage of respondents who received THR for their children has increased by 51.2% in end line from baseline. While, in comparison percentage of respondents who received THR for their children has increased by 8.6% in end line from baseline. The differential value estimated is 42.6% which is significant and could be attributable to intervention[30].

3.7 Conclusion

The current study analysed the impact of project Karuna's intervention on malnutrition. This chapter compared the status of malnutrition and associated indicators during the baseline and end line. In project (Pindra block: District Varanasi) and comparison (Mariahu block: District Jaunpur) area in Uttar Pradesh. In order to achieve the aim, project Karuna mainly focused of inter-block departmental convergence, capacity building of FLWs through trainings, behavioural change activities at village level and appointed nutritional counsellors to connect with local residents and to help FLWs. There are many factors, which affect the malnutrition in children such as hygiene and sanitation, pre-natal, delivery care, post-natal, IYCF, breastfeeding, immunization, morbidity etc. The study tried to capture these factors and its association with malnutrition.

In Pindra values of confounding factors for reducing the malnutrition level have shown positive changes i.e. literacy levels of respondents were higher (17.89% are having more than 10 years of education in end line), and less number of women are getting married before legal age (BL: 44.9% - EL:23.97%). Similarly, there is improvement in consumption of locally available nutritious food supplements such (white tubers, green and leafy vegetables, cereals and fruits), Improvements in handwashing practices, improved drinking water sources (BL: 95.3% to EL: 98.5%) and improved sanitation facilities (BL: 27.9% to EL:42.5%). Likewise, ante natal care and proper delivery mechanism play crucial role in health of new-born child. There is substantial improvement in ANC and delivery care services from baseline to end line.

Project karuna initiative has shown considerable improvement on IYCF indicators. Difference-in-difference analytical tool for measuring net improvement as a result of the project intervention, unveils a positive change of 10.37% percentage points in exclusively breast feeding practices. Data

[29] P=0.002
[30] P=0.000

also indicated the reduction 9.2% in morbidity levels too. In other side BCC activities initiated by NC's have upgraded the awareness levels of mother on symptoms of malnutrition.

The differential improvement for full immunization seen in project areas (improvement of 27.5%) is certainly more enhanced than witnessed in comparison areas (improvement of 22.2%). This could be attributed to the supportive supervision of front line worker in delivering immunization services and THR distribution through AWC and VHND's. This along with other nutrition interlinked factors played major role in reduction of malnutrition level in intervention areas. The SAM cases also declined in the project areas compared to comparison areas.

The proportions witnessed across all four malnutrition assessment categories viz. Stunting, Underweight, Wasting and SAM, have seen a decline from baseline to end line across the project district. The percentage decrease in cases of underweight is 7.4%, stunting is 8.9%, wasting is 3.3% and in case of SAM it is 1.5% from baseline to end line in project area. The improvement shown in baseline and end line comparison could be as a result of the unique initiatives of the project Karuna such as inter-departmental convergence and induction NC's at village level which had acted as the bridge between beneficiaries and quality of services.

4 Block Report: Gumla, Jharkhand

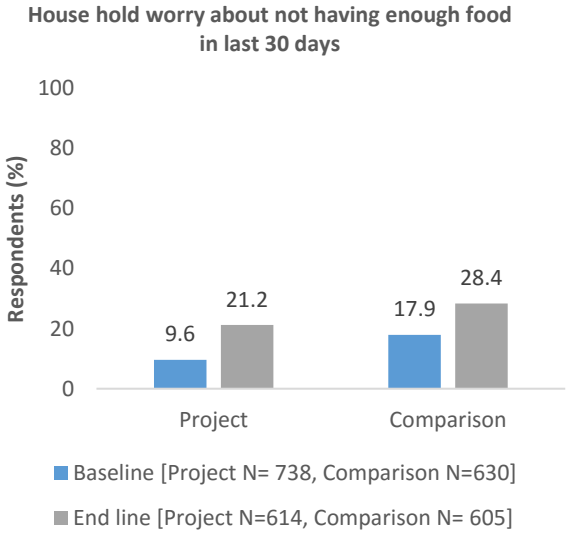
This study aims to establish a logical cause and effect linkage through evaluation of various factors that have enabled change in outcome and the Impact of the intervention. This chapter details out these indicators in following categories.

4.1 Food security and dietary practices

The current section describes HH food security related indicators and the dietary practices of mothers and pregnant women. In addition, change in value of indicators from baseline to end line is also explained. Availability of food affects the nutritional status of the population, scarcity of adequate food may lead to malnutrition and it is specifically important for pregnant women and growing children.

4.1.1 Food security

Figure 36: Household worry about not having enough food in the past 30 days



The percentage of respondents worried about not having enough food in the past 30 days increased across the study areas from base line to end line. This implies that access to food has decreased in project as well as comparison area. At end line 7.7% and 4.7% of respondents reported that they were worried about not having enough food for the house hold more often i.e more than 10 times in pat 30 days previous to survey. The frequency of worry for availability was found to be increased in both project and comparison area in end line when compared with baseline.

Qualitative findings on lack of food resource

Most of women respondent discussed that they avail foods from government schemes which makes up for insufficient food in case of scarcity due to lack of money etc. Some of the respondents said during rainy season they have difficulty in getting the food supplements from public distribution shops due their engagement in agricultural activities.

"This happens mostly during rainy season… because we have to spend on agriculture at this time" reported by a FGD respondent

Association between the socio-economic background and food security was also computed. For Hindu and Muslim food security were increased in end line for project and comparison area. In project area food security were increased for SC, ST and OBC while, it was decreased for General. Project areas of Jharkhand Respondents from general categories are more worried about food security than other caste categories. Whereas in comparison area 36% of respondents were worried about food having sufficient food. Above table clearly ready the increase in respondent being worried about having sufficient food for their households. This could be a restraining factor for decreasing malnutrition levels among children. Details of frequency and distribution of worry about not having enough food in households on the basis of selected socio-economic background characteristics are given at annexure.

4.1.2 Dietary Practices

Studies have shown that dietary practices of pregnant and lactating women have an effect on maternal and child nutritional status. Maternal undernutrition is associated with low birth weight and all its attendant adverse consequences.[31] Dietary practices of pregnant women and women with children less than 6 years of study area was captured in the present study.

Qualitative findings on dietary practices

Most common dietary habit of respondents was found to be vegetarian. Consumption of meat and fish are found to be minimal. Consumption of green vegetables in summer season found to be low due increased cost or decreased agricultural activities.

"We eat rice, dal, roti, green leafy and vegetables, whatever is available in the village"
FGD respondents

During end line survey consumption of white tubers and roots, green leafy vegetables, other vegetables, fruits, meat, eggs, beans, peas, lentils, nuts, seed, oil, fats, milk product and tea/coffee was increased in both categories i.e. mothers of children in the age group of 0 to 59 months and pregnant women from baseline. However, consumption of vitamin rich vegetables and tubers was found to be decreased. Increase in intake of white tubers and roots, nut, seed, oils and fats provide for energy, green leafy vegetables, other vegetables and fruits for vitamins and minerals, milk products for calcium and protein and meat, eggs, beans lentils for protein etc in the study group.

Table 31: Table Dietary practices among respondent groups in Project area

Food Item	Baseline		End line	
	JHARKHAND Project Block (%) (n=656 for A and n=82 for B)		JHARKHAND Project Block (%) (n=544 for A and n=70 for B)	
	Mothers of children in the age group of 0 to 59 months	Pregnant Women	Mothers of children in the age group of 0 to 59 months	Pregnant Women
	(A)	(B)	(A)	(B)
	(%)	(%)	(%)	(%)
Cereals	94.8	98.8	98.3	95.7
Vitamin rich vegetables and tubers	57.8	56.1	29	35.7
White tubers and roots	22.4	25.6	73.5	65.7
Green leafy vegetables	15.2	8.5	37.1	32.9
Other vegetables	15.2	15.9	36	27.1
Fruits	5.2	3.7	25.5	34.3
Meat	1.8	1.2	5.1	4.3
Egg	3.2	2.4	7.7	4.3
Fish	1.1	7.3	1.5	5.7
Beans, peas, lentils	4	4.9	15.3	15.7
Nuts, seeds, oils, fats	0.3	0	0.7	1.4
Milk products	9	8.5	9.2	12.9
Tea/ coffee	0.8	1.2	25	24.3

[31] Nutrition in Pregnancy and Lactation, Ministry of Women and Child Development, Website: wcd.nic.in

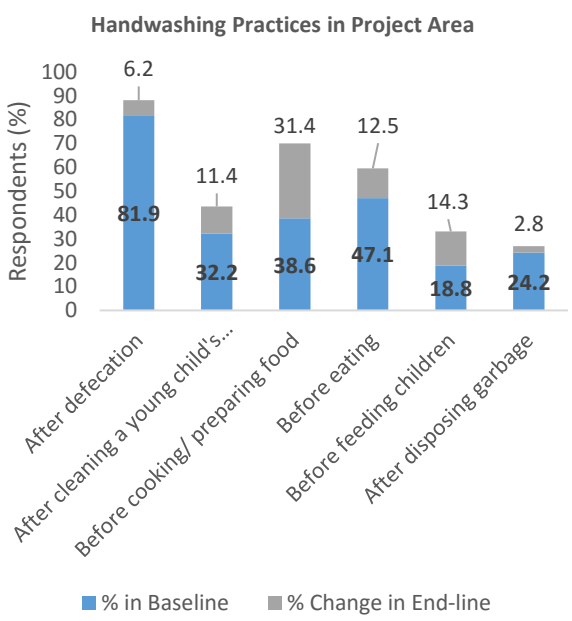
4.2 Hygiene and Sanitation Practises

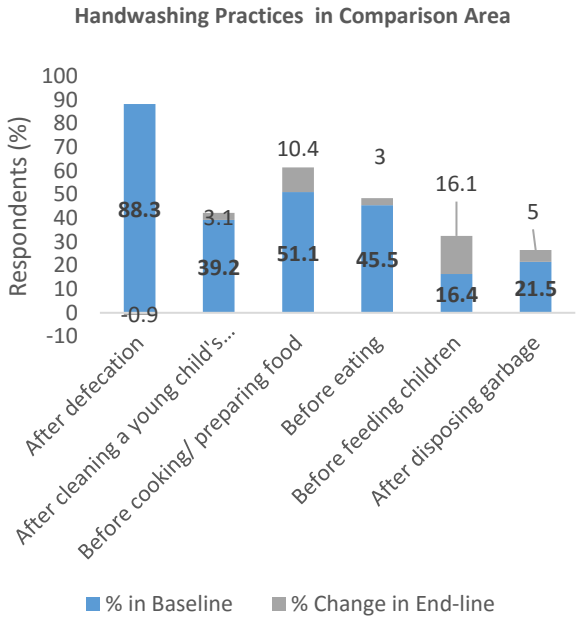
Improved conditions of sanitation and hygiene practices are associated with reduction prevalence of malnutrition in India. Growing evidence suggests a link between child linear growth and household water, sanitation and hygiene (WASH) practices[32]. This section describes indicators pertaining to hygiene and sanitation practices segmented into the following sections.

4.2.1 Hand washing practices

Study tried to find if any improvement has been made in hand washing practices. It was found that percentage of respondents of all categories who wash their hand after certain activities like- after defecation, after cleaning a young child's faeces, before cooking, before eating, before feeding children, after disposing garbage has increased in end line as compared to baseline. As nutritional status is directly affected by hygienic practices, an improvement can be expected due to enhanced practices in project area. Details of percentage respondents washing hands at select activities for pregnant women is given at annexure.

Figure 37 : Percentage changes in hand washing practices at selected activities among mothers





4.2.2 Source of drinking water

Along with capturing hygiene practices, study has also captured changes made in improved source of drinking water[33]. In both project (BL- 66.8% EL-81.8%) and comparison (BL-64.6% EL- 73.8%) areas, percentage of HHs having improved source of drinking water have increased as compared to baseline.

Qualitative findings on source of drinking

Most common source of drinking water reported is hand pump, tap water and well as shared by the respondents. The common practice for cleaning the water was found to be boiling at domestic levels.

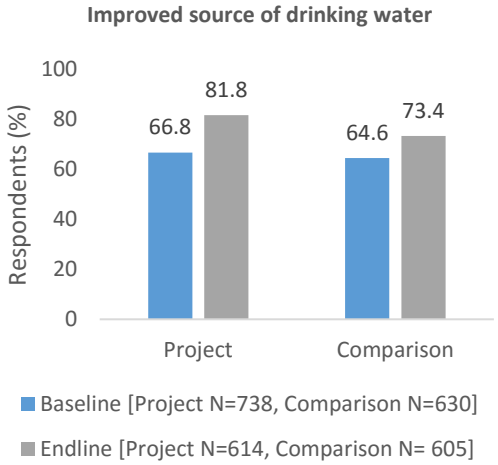
'We drink tap water and some of us have hand pump" …….. FGD 105

"We bring water from well and it is not closed. We boil the water before drinking also drop bleaching tablets to the well once in a month" ……. FGD 104

[32] Household sanitation and personal hygiene practices are associated with child stunting in rural India: a cross-sectional analysis of surveys - http://bmjopen.bmj.com/content/5/2/e005180.full

[33] Piped water into dwelling / yard /plot, public tap, stand pipe, tube well or bore well, protected dug well, protected spring, rain water, community RO plant, own hand pump and public hand pump -NFHS 3

Figure 38 : Percentage of households having improved source of drinking water



In end-line study value of improved source of drinking water has increased for all castes and religions for both project and comparison area. Details of both areas are given in the table below.

Safe drinking water is one the determinant of the nutritional status. With an increase in access to improved source of drinking water and influence on nutritional status of the study group may be expected. Details of religion and cate wise distribution is given at annexure.

4.2.3 Sanitation Practices

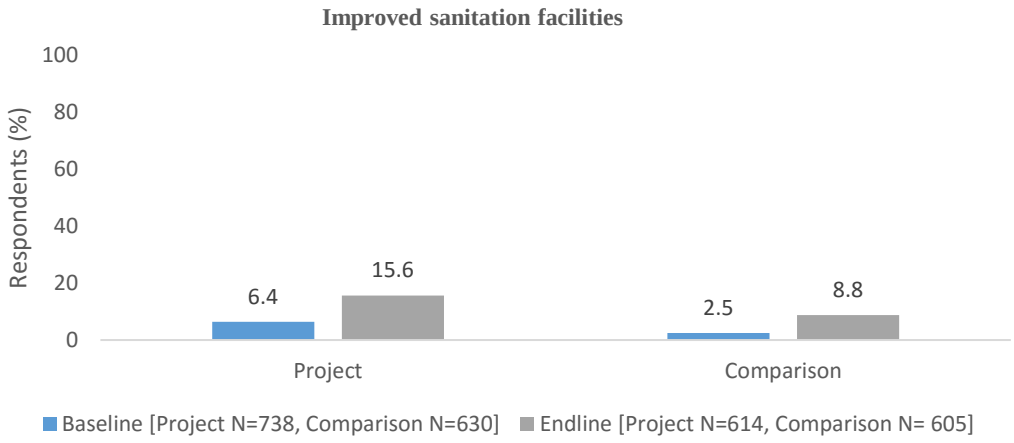
Sanitation practices are one of the key determinants of the nutritional status. Improvement has also been observed in improved source of sanitation facilities[34]. As can be inferred from the figure below, in both project (BL- 6.4% & EL-15.6%) and comparison (BL- 2.5% & EL-8.8%) areas, percentage of HHs having improved sources of sanitation facilities has increased during end line study as compared to baseline study. However, the values are still very low and indicate towards a need to emphasize more on these activities. This may have an adverse impact on nutritional status on the study population.

Qualitative findings on sanitation facilities

Almost All women respondents of FGD reported that they do not have toilet facilities at their residence. But, interestingly most of the respondents discussed need of toilet facilities as they may get infected with by practicing open defecation.

" No one has toilet in houses, we need the toilet facilities in our villages because we get disease by doing open defecation" … FGD 107

Figure 39: Percentage of households with improved sanitation facilities



[34] Flushes to piped sewer system, flushed septic tank, Flushed to pit latrine, ventilated improved pit/bio gas latrine, pit latrine with slab, twin pit / composting toilet which are not shared with any other house hold

In project area, all caste categories have shown improvement during end line study, except for general caste. In comparison area, all caste categories have shown improvement from baseline. In case of religion, improvement has been noted across all religion in both project and comparison areas. However, in comparison area, no change has been observed in Muslim community. Details of the religion and caste wise distribution is given at annexure.

4.3 Pregnancy and Antenatal Care

For many children, stunted growth starts before birth as a result of poor maternal nutritional status and worsens gradually during the first 2 years of life. Thus, the first 100 days, from conception until the age of 2 years, are a critical window of opportunity, during which timely interventions can have a measurable and lasting impact on the prevention of child stunting[35]

This section describes the status of pregnancy and antenatal care (ANC) related indicators among women in the project areas. The pregnancy and ANC related questions were asked to pregnant women and mothers of children in the age group of less than 6 months. Comparison has been made in findings between baseline and end line study.

4.3.1 Pregnancy registration

As can be noted from the table below, in project area, across both respondent categories i.e. pregnant women and mothers with children less than 6 months' improvement was seen in end line as compared to baseline. This increment is noted in all three indicators i.e. percentage of pregnancy registered, mean month of pregnancy registration, pregnancy registered within 1st trimester. However, in comparison area either no improvement or very less improvement has been found.

Table 32 : Pregnancy registration

		Base Line				End Line			
Type of block	**Respondent category**	**Pregnancy registered (%)**	**Mean month of pregnancy registration**	**Pregnancy registered within the 1st trimester (%)**	**N**	**Pregnancy registered (%)**	**Mean month of pregnancy registration**	**Pregnancy registered within the 1st trimester (%)**	**N**
Project	Pregnant women	90.2	2.9	81	53	91.4	3.02	84.3	70
	Mothers with children less than 6 months	97	3.1	76.5	87	100	3.16	79.5	73
Control	Pregnant women	89.1	3.2	75.6	46	89	2.74	78.1	73
	Mothers with children less than 6 months	97.4	3.1	74	79	98.7	3.04	74.7	79

35 Household sanitation and personal hygiene practices are associated with child stunting in rural India: a cross-sectional analysis of surveys - http://bmjopen.bmj.com/content/5/2/e005180.full

4.3.2 Status of antenatal checkups ANC

A child whose mother had fewer than four government antenatal care visits was more likely to be malnourished[36].Comparison has been done to find out change in values of various services pertaining to ANC during end line as compared to baseline.

Ever received ANC services has increased by 21.4% and 16.6% for "pregnant women" and "mothers with children in the age group of less than 6 months" respectively in project area during end line. Similarly, ANC with in first trimester has increased by 9.1% and 4.6% for aforementioned categories respectively during end line in project area. Likewise, blood pressure checked as a part of ANC has increased by 49.5% and 34.6% for discussed categories respectively during end line in project area. Also, received three ANC services has increased by 1 2.3% and 2.3% for discussed categories respectively during end line in project area. In comparison area percentage of respondents ever received ANC services and blood pressure checked as a part of ANC services have increased for both categories during end line. While, percentage of respondents received ANC within first trimester and received at least three ANC services has decreased during end line.

Qualitative findings on ANC services

Most of the women reported that their Blood Pressure was measured and blood and urine were tested during pregnancy. Qualitative finding indicates the improves services of counselling on diet, nutrition and exclusive breast feeding by front line workers. At some places respondent reported that FLW's are cross checking the consumption of IFA tablets.

"they checked my weight, urine and anaemia test also done. I got 100 iron tablets. … ASHA worker came to my home to check whether I am eating the tablets or not" … FGD 105

'we drink tap water and some of us have hand pump" .. *FGD 105*

"We bring water from well and it is not closed. We boil the water before drinking also drop bleaching tablets to the well once in a month" … *FGD 104*

Values of all indictors including ever received ANC, Received ANC in first trimester, BP checked, at least 3 ANC for both respondent categories were found to be higher during end line survey. In comparison area also, values were found higher for all indicator for "Mothers with children in the age group of less than 6 months" category. But in case of "Pregnant women" category, values for indicator- "ANC within 1st trimester" (BL-67.5 & EL-65.8%) and "at least 3 ANC" (BL-57.5% & EL-47.9) was found to less as compared to baseline in comparison area.

[36] Childhood Malnutrition is Associated with Maternal Care During Pregnancy and Childbirth: A Cross-Sectional Study in Bauchi and Cross River States, Nigeria - http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4407040/

Figure 40: ANC services availed by mothers of children in age group of less than 6 months

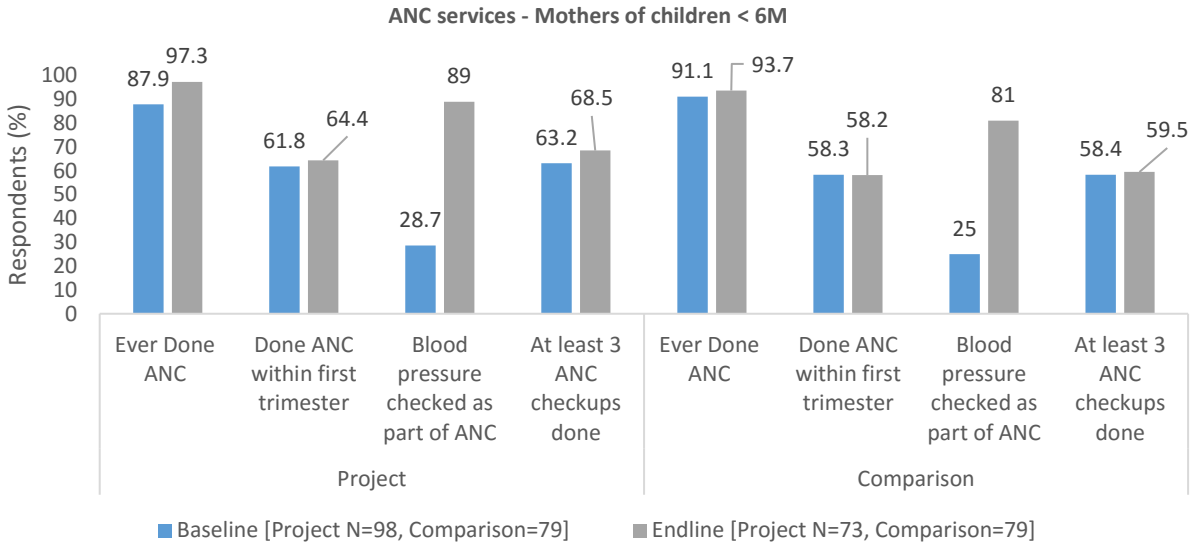
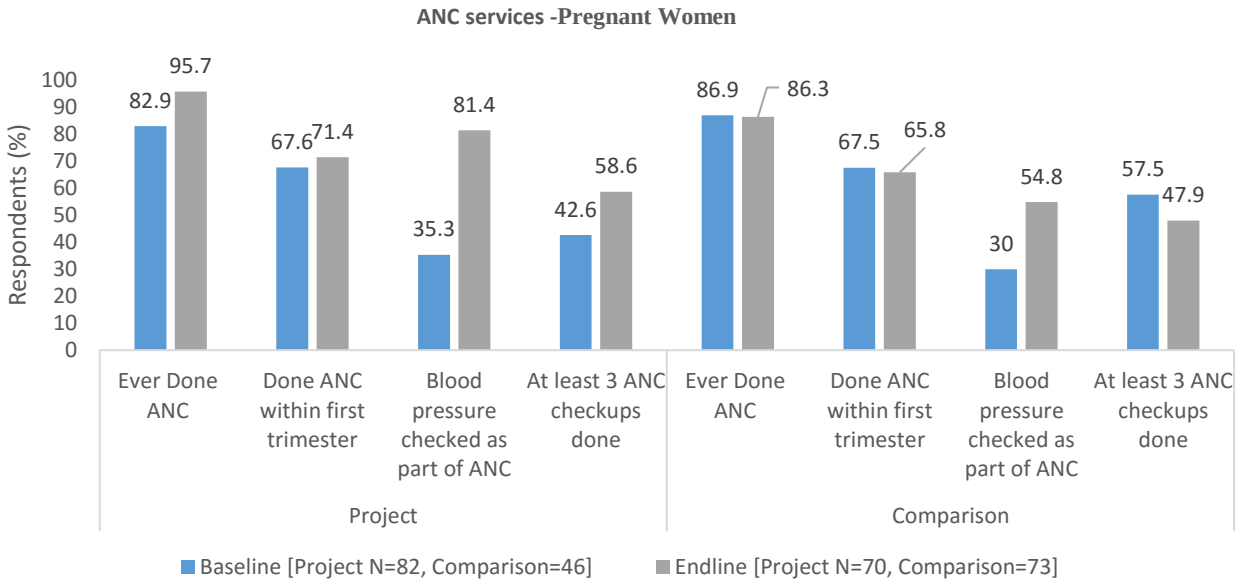


Figure 41: ANC services availed by Pregnant women



4.3.3 IFA supplementation and TT injection

Project Kaurna supported the front line workers in promoting IFA supplementation and TT injection during pregnancy. Among the mothers with less than 6-month old child the values for receiving 100 IFA tablets in project area has increased up to 34.8% and for comparison area is 31.5% from baseline to end line.

For both categories of respondents, in project area, values for respondents who received Iron Folic Acid (IFA) supplementation, received at least 100 IFA tablets, received at least one TT injection and received 2 TT injection during pregnancy all indicators mentioned above was found higher during end line. In comparison area also, increment was observed is values of all indicators except for percentage of pregnant women who received 2 TT injections (BL-87% & EL-84.9).

Figure 42: IFA supplementation and TT injection: Mothers with children in the age group of less than 6 months

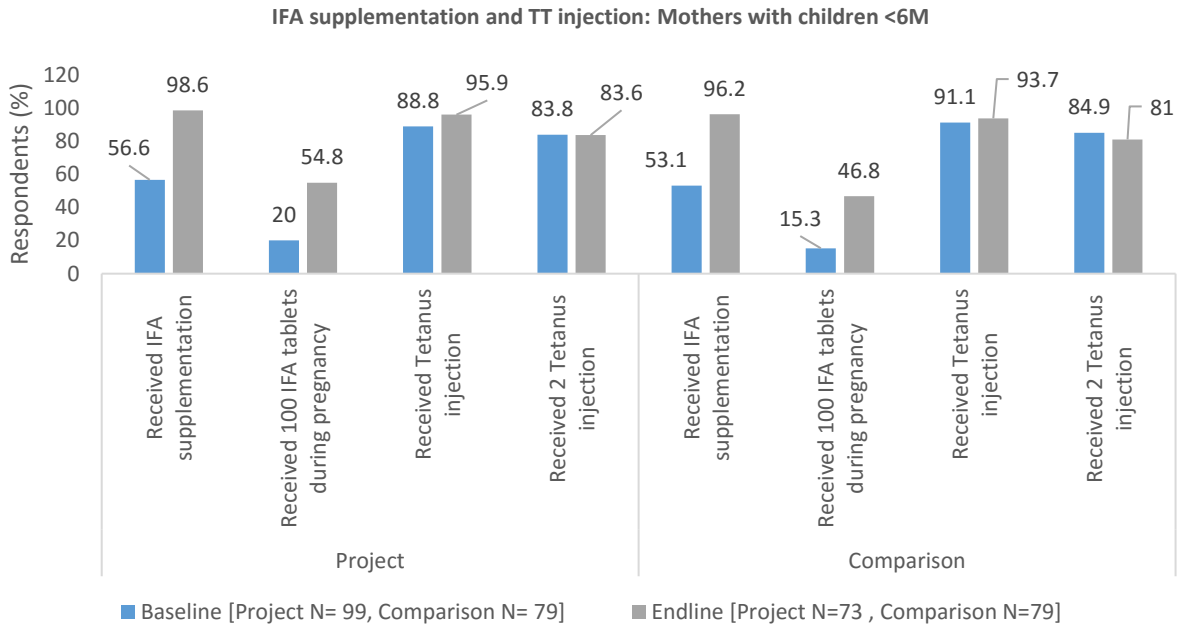
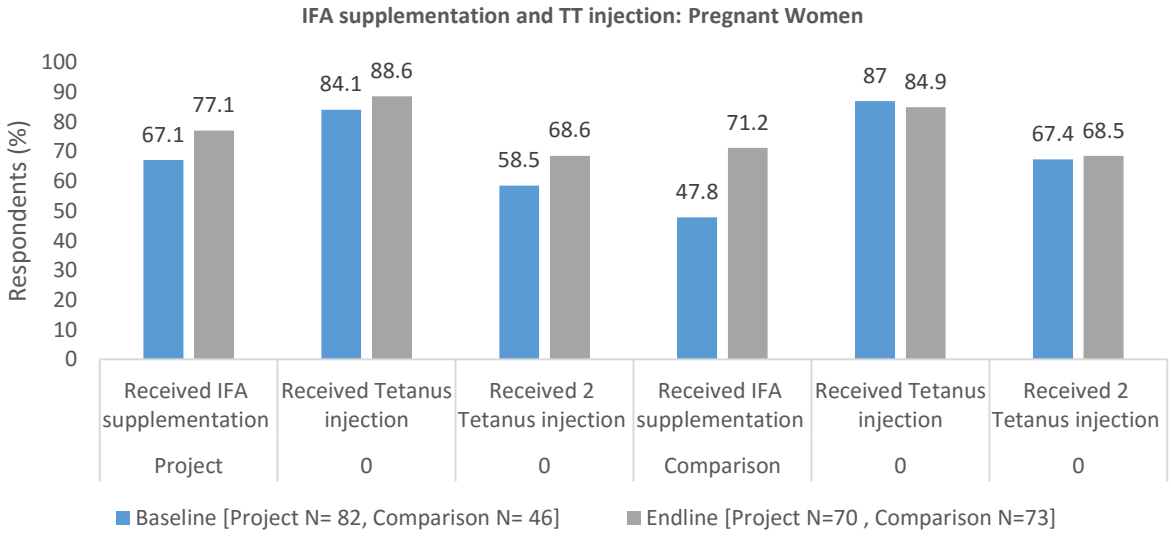


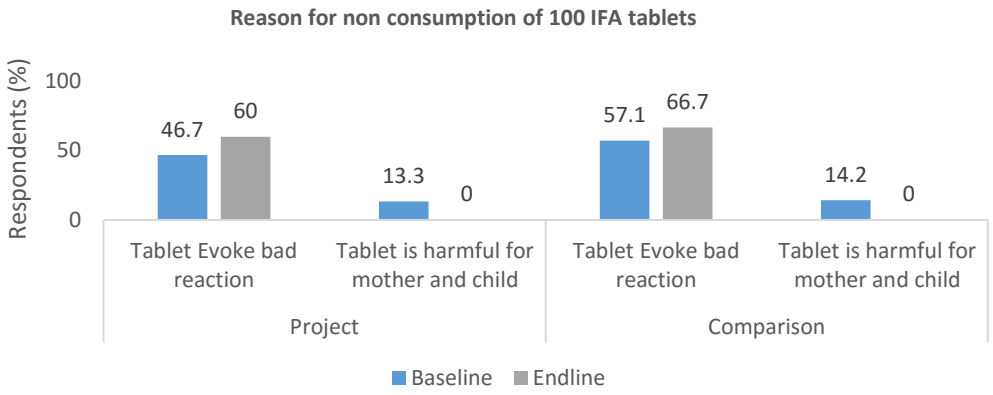
Figure 43: IFA supplementation and TT injection: Pregnant Women



4.3.3.1 Reason for non-consumption of 100 IFA tablets

Those respondents who received 100 IFA tablets but did not consume all the tablets where enquired about reason for non-consumption of tablets. The main reason for non-consumption of all tablets was that tablet evoked bad reaction in end-line same as baseline.

Figure 44: Reason for non-consumption of 100 IFA tablets



4.4 New born care and Infant & Young Child Feeding practices

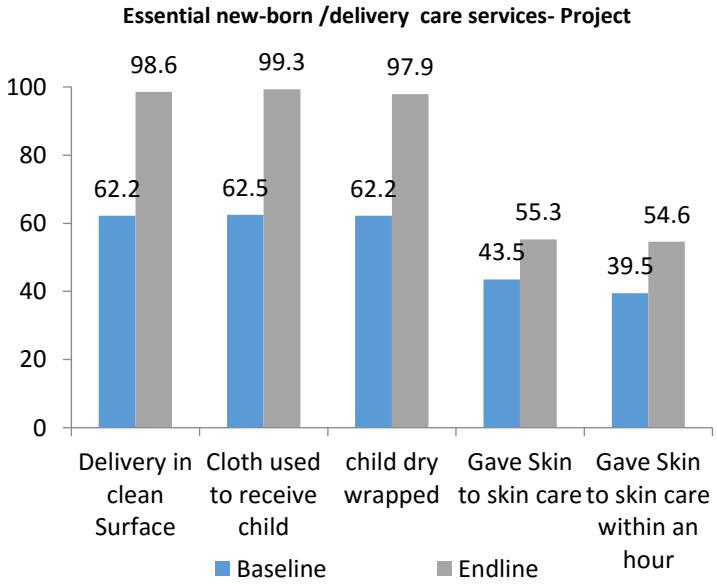
A child's risk of dying is highest in the neonatal period, the first 28 days of life. Safe childbirth and effective neonatal care are essential to prevent these deaths. 45% of child deaths under the age of 5 take place during the neonatal period[37]. Also increasing evidence links IYCF practices to undernutrition. This section describes all the indicators pertaining to child delivery, early new-born care, early and exclusive breastfeeding and government entitlements received for childcare. For questions pertaining to these indicators, the respondent group was mothers with children in the age group of 0-24 months. Comparison has been made baseline values and end line values. The indicators are categorized into the following sections.

4.4.1 New-born Care

4.4.1.1 Essential new -born mechanism

The basic component of essential new-born care were asses during the evaluation study. An improvement in all indicators of essential new-born / delivery care mechanism was noted in end line in comparison baseline values for project area. Improvement in these indices may have a positive impact on morbidity and nutritional status in study group in the project area.

Figure 45: Proportion of respondents reporting proper delivery mechanism: Project

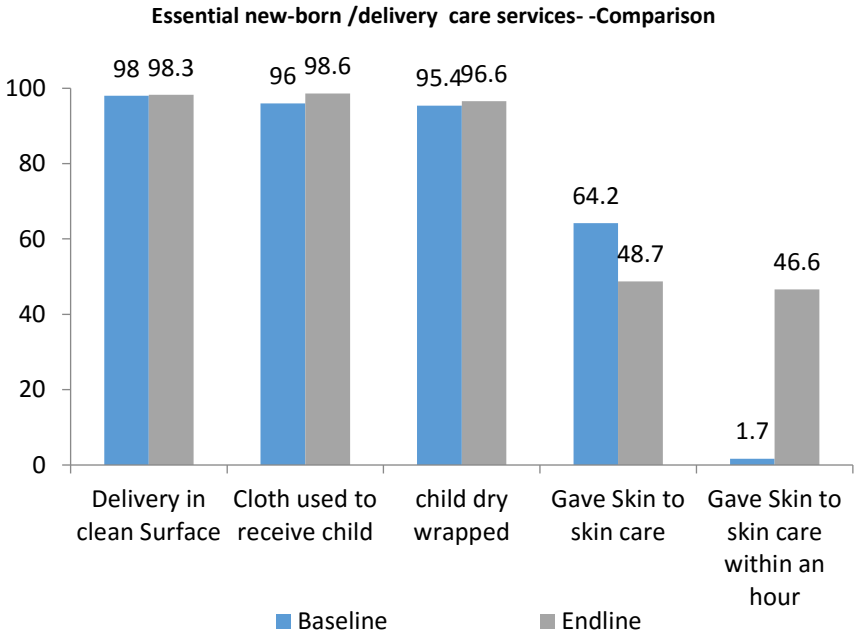


An improvement was noted where 36.4 % of more babies were delivered in the clean surface and also almost 15% of more baby's received skin to skin care within an hour in project area in end line when compared to baseline.

However, for comparison area, very meagre increment has taken place. In addition, values for indicators like "gave skin to skin care" has found to be lower than baseline. Details are given in the figure below.

[37] WHO - http://www.who.int/mediacentre/factsheets/fs178/en/

Figure 46 : Proportion of respondents reporting proper delivery mechanism: Comparison

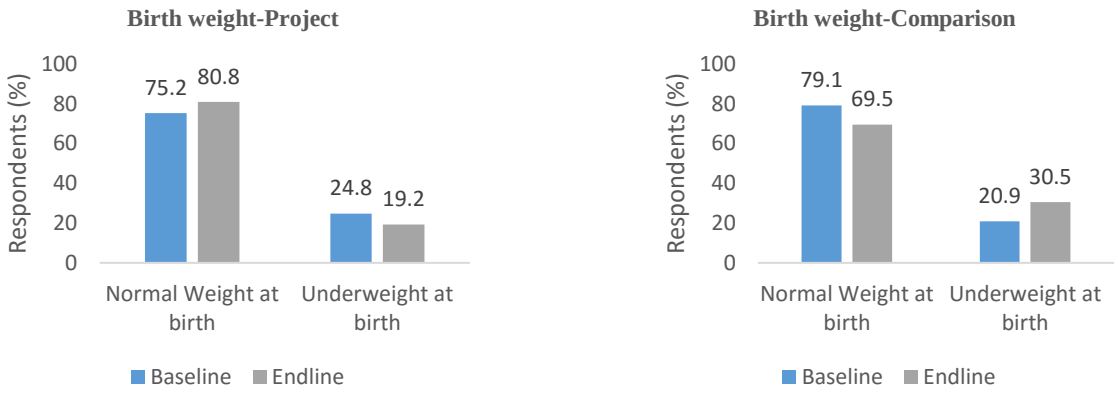


End line values of comparison area are in line with project area however, a marked increase was noted in values of these indicators in project area. Data reads the improvement of 40% in skin to skin care services for new born in comparison area.

4.4.2 Birth weight of the new-born

Respondents were asked about the weight of the child and when the child was weighed for the first time. The weight was either recorded on the mother and child health card or it was recorded from mother's recall if the card was not available. According to WHO standards, a new born child should weigh at least 2.5 kg to be considered healthy. Applying this condition, in project area, 80.8% of new born children were found to be healthy in the project block during end line which is higher as compared to baseline (75.2%), however, prevalence of low birth weight babies in project area was found decreased by 5.6% when compared with baseline. In comparison area, reverse situation was noted, percent of healthy children decreased by 10% whereas percentage of underweight children increased (approx. 10%) during end line study. This could be because of improved ANC delivery care services and IFA supplementation. Micronutrient deficiencies during pregnancy have been shown to have serious implications on the developing foetus[38]

Figure 47 : Comparison Birth weight of child in project and Comparison area



[38] Maternal nutrition & low birth weight - what is really important?- Sumithra Muthayya

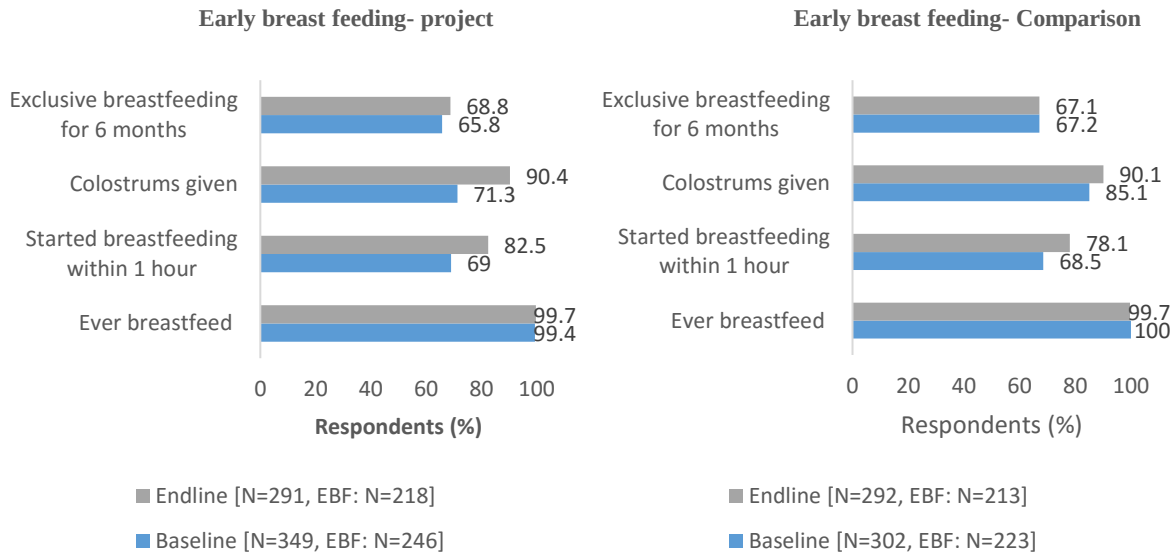
4.4.3 Early and exclusive breastfeeding

Breastfeeding is the foundation of good nutrition and protects children against disease. In this way, breastfeeding allows all children to thrive and develop to their full potential. Immediate breastfeeding – putting the baby to the mother's breast within an hour after birth – would significantly reduce neonatal mortality[39].

Analysis showed that percentage of children to whom colostrum was given (19.1), percentage of children who were breastfed within 1 hour (13.5%) and percentage of children who were ever breastfed (0.3%) increased during end line study in project area. This improvement has been observed across both project and comparison areas. Details are given in the charts below.

Similarly, in project area 68.8% were exclusively breastfed during end line as compared to base line where findings were 65.8. In comparison area, no such difference was found. An improvement of 3.1% in exclusive breast feeding in project area over the period of three years may be due to intervention in the project area. This may have positive implication on malnutrition status of the study population.

Figure 48 : Proportion of respondents following key Infant and Young Child Feeding practices



4.4.3.1 Reasons for not giving breast-milk within one hour of birth

Reason for not breastfeeding within an hour were also ascertained from the respondents. One of the reasons that was quoted highest in baseline and end line was "milk was not available" both in project and comparison area. Other reasons quoted were found to be decreased in end line in comparison with baseline in both the area. A reduction in reason quoted as "traditional family advice" was noted which indicates towards change in family perception over the period of time. Findings are given in the charts below.

Table 33 : Reasons for not giving breast-milk within one hour of birth

Reasons	Project		Comparison	
	Baseline	End line	Baseline	End line
	n =107	n =50	n =95	n =63
Milk was not available (%)	35.5	58	28.4	74.6
Mother Unwell (%)	31.8	26	17.9	12.7
Traditional Family Advice (%)	24.3	6	22.1	7.9
Doctor/Nurse/ANM advice (%)	3.7	2	14.7	4.8
C Section (%)	3.7	6	11.6	6.3

[39] Unicef- http://www.unicef.org/nutrition/index_24824.html

4.4.3.2 Reasons for non-exclusive breastfeeding for six months

In end line, highest reason for nonexclusive breastfeeding for six months was found highest in project areas followed by family/traditional advice and no/less breast milk secretion. Reason "family/traditional advice" was found to decrease in end line for not giving breast milk within one hour of birth whereas increased for non-exclusive breastfeeding for six months compared to baseline in project area.

Table 34 : Reasons for non-exclusive breastfeeding for six months

Reasons	Project		Comparison	
	Baseline	**End line**	**Baseline**	**End line**
	N =12	N =14	N =13	N =23
For child's good health (%)	30.8	42.9	0	43.5
No breast milk (%)	30.8	14.3	71.4	13
Family/traditional advice (%)	7.7	28.6	21.4	13
Less milk production (%)	15.4	14.3	7.1	21.7

4.4.4 Complementary Feeding

When breast milk is no longer enough to meet the nutritional needs of the infant, complementary foods should be added to the diet of the child. The transition from exclusive breastfeeding to family foods, referred to as complementary feeding, typically covers the period from 6 to 18-24 months of age, and is a very vulnerable period. It is the time when malnutrition starts in many infants, contributing significantly to the high prevalence of malnutrition in children under five years of age world-wide.[40]

83.9% of mothers initiated complementary feeding at the age of 6 months to their children which is 13.7% higher than baseline. In comparison area only 0.4% improvement has seen form baseline (78%) to end line (78.4%)

In project area, complementary feeding practices has found to be improved over a period of time. During end line 48.6% children were given Clear broth/ rice water/ soup during last 24 hours as compared to baseline where only 30.2% children were given Clear broth/ rice water/ soup during last 24 hours.

However, consumption drinks like tea or coffee, other kind of milk was also found to be high. These drinks are not considered healthy for children as these liquids and the utensils used for handling them are difficult to clean and carry infections such as diarrhoea to the child. Most liquids other than breast milk contain inadequate amounts of nutrients and fill-up the child stomach without providing adequate nutrition.

[40] WHO - http://www.who.int/nutrition/topics/complementary_feeding/en/

Figure 49: Percentage of children in the age group of 6-23 months to whom various fluids have been given over the last 24 hours in Project Area

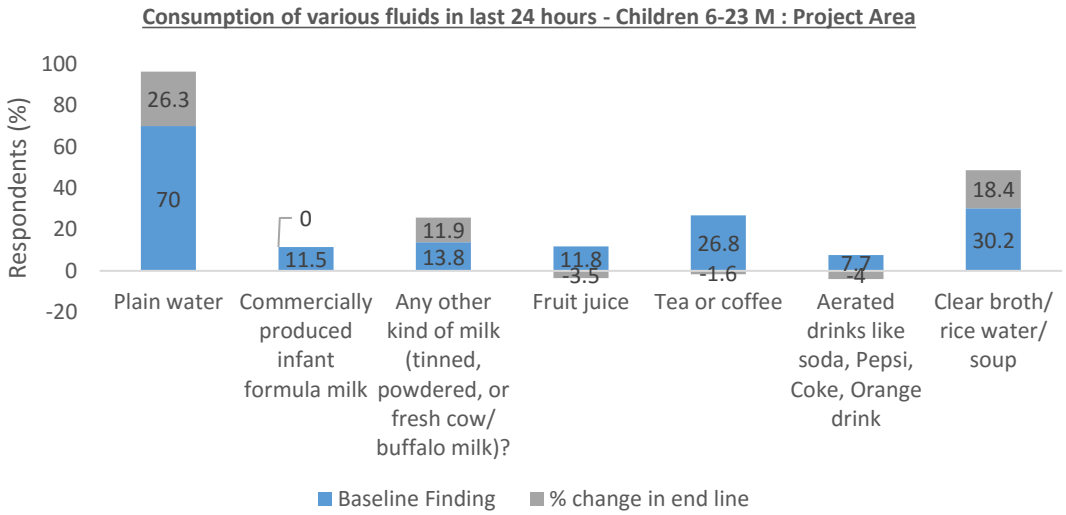
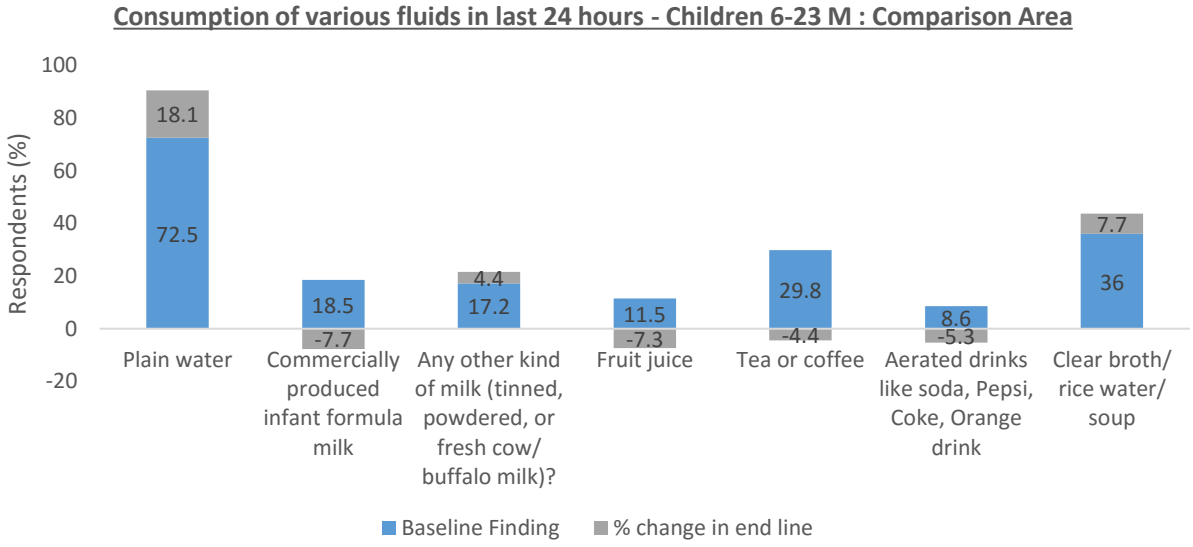


Figure 50 : Percentage of children in the age group of 6-24 months to whom various drinks have been given over the last 24 hours in Comparison Area



Similarly, information was also gathered on food items given to the children during last 24 hours. In project area 74.6 % children ate bread, roti, chapatti (BL-71.7%), 64.5% ate vegetables (BL- 50.8%), 96.4 % ate porridge or gruel (BL-90.9). value of these indicators have also been found high in comparison area. Details of findings are given in the table below.

Figure 51 :Table Percentage of children in the age group of 6-23 months eating various food items in the past 24 hours in Project area

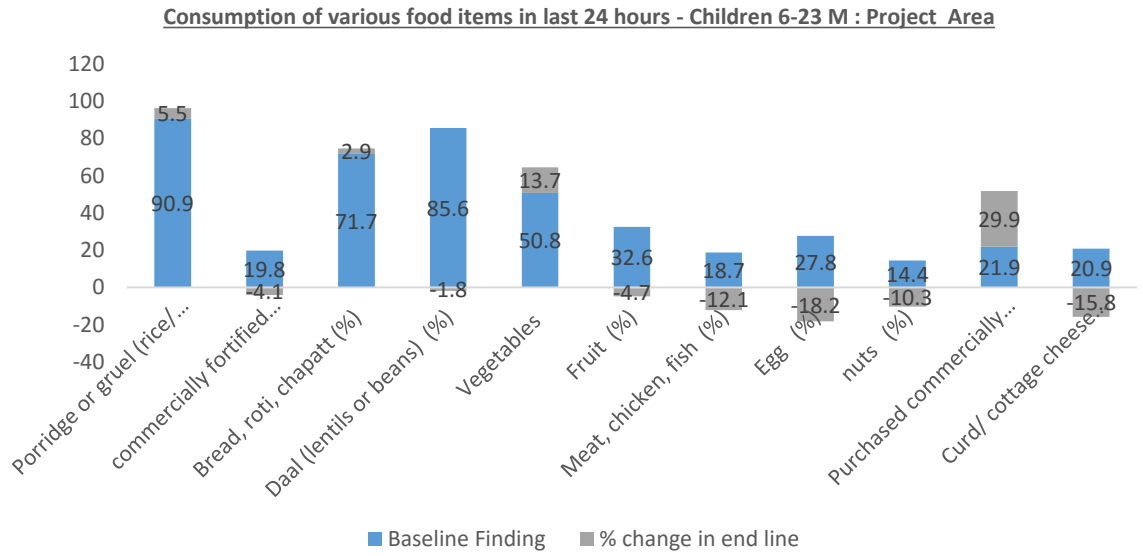
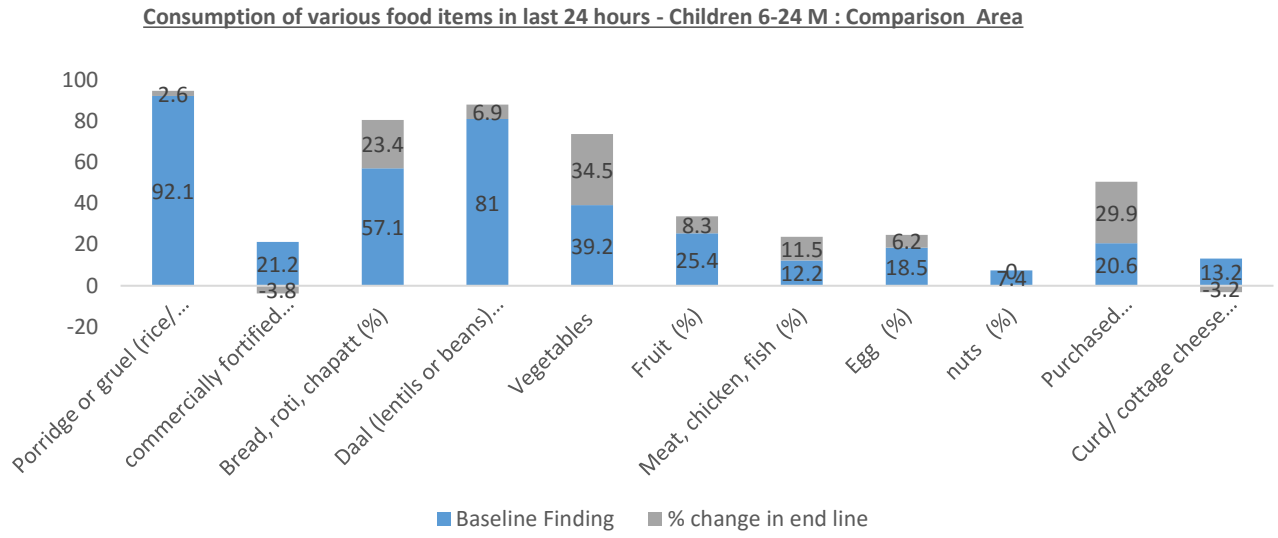
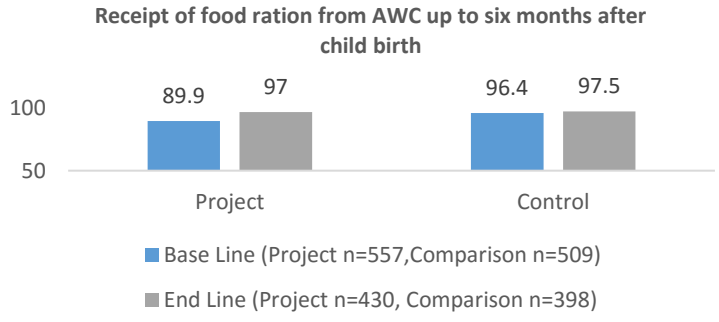


Figure 52: Percentage of children in the age group of 6-23 months eating various food items in the past 24 hours in Comparison area



4.4.5 Access to Supplementary food initiated by Government

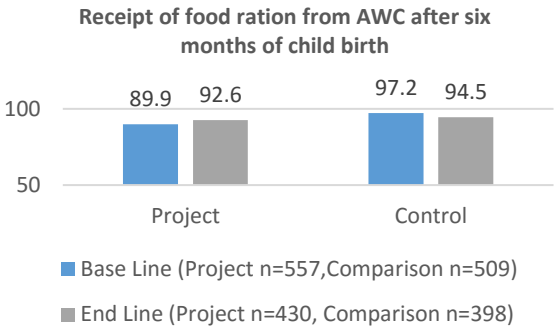
The Supplementary Nutrition is one of the six services provided under the Integrated Child Development Services (ICDS) Scheme. Project Kaurna has supported the initiative by capacity building the frontline workers in proper distribution of supplementary foods to pregnant women, lactating mother and children below 6 years. Figure 53: Receipt of food ration from AWC up to six months after child birth. The



percentage changes in both project and comparison area is found to be similar in the end line, But, in the project area almost 7% improvement was measured.

Figure 54 :Receipt of food rations from AWCs after six months of child birth

Similarly, in project area 2.7% increase in availing food rations for AWC's by mother after six months of child. Where values for these indicator show's a downward trend in comparison area.



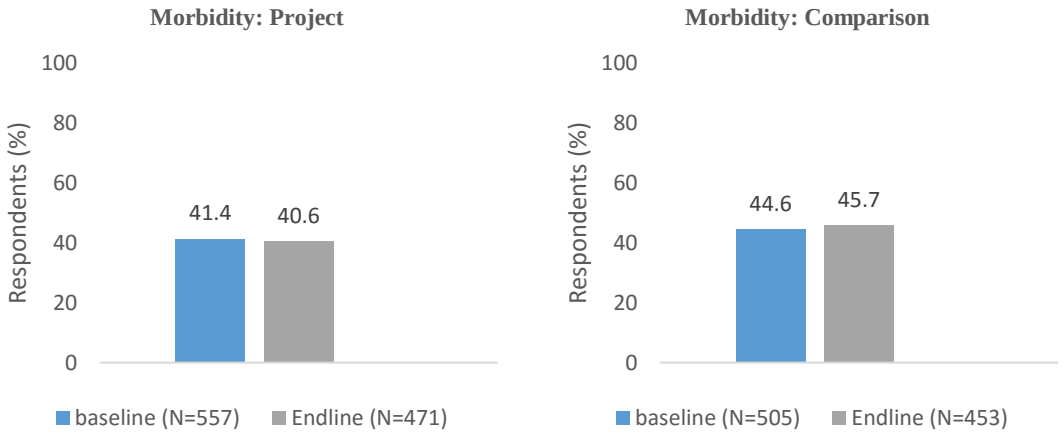
4.5 Child health, Awareness about Malnutrition and Child Vaccination

The current chapter describes indicators related to child health, which have been categorised into the following sections: diseases children suffer from, feeding practices during illness, child vaccination and malnutrition.

4.5.1 Child health problems and health facilities accessed

The percentage of children fallen ill over last three months were decreased for project block, however, just opposite happened in comparison block. This could be because in project block more number of households were practicing exclusive breastfeeding and other IYCF practices also, in project area more number of households had access to improved sanitation facilities, safe drinking water sources. The project areas have seen a reduction in cases of children falling sick in the last 6 months by 0.8%. The differential estimate tells us that the effect of intervention, may have led to a positive change on this variable by 1.9%.

Figure 55: Percentage of children in the age group of 6 to 59 months who have fallen ill over the last three months



In project area, incidences of illness over the past three months were decreased for SC and OBC castes. However, for ST and general caste value of this indicator has increased from by meagre percentage in endline.

Table 35 : Percentage of children, by caste, in the age group of 6-59 months who have fallen ill over the past three months

Background characteristics		Type of block	Base Line: Has the child fallen ill over the last 3 months (%)	Base Line: N	End Line: Has the child fallen ill over the last 3 months (%)	End Line: N
Caste	General	Project	50	50	57.1	42
	SC	Project	29	31	27.1	48
	ST	Project	42.2	332	43	258
	OBC	Project	45.8	144	35.5	121

Qualitative findings on child illnesses

Cold, cough, fever, diarrhoea are the most of common child illnesses discussed in the FGD's. At some places women reported of child illnesses such as pneumonia and malaria also. Episodes of fever were reported more in rainy season. Most preferred health facility for treatment is found be "sadar aspatal" i.e district hospital at few places private health consultants.

" some time children get cold, dasth (diarrhoea), pneumonia, fever, khorvi (cough), julab (lose motion), malaria. Most of the time we go to sadar hospital. Some time we consult the private doctor too"…. FGD 104

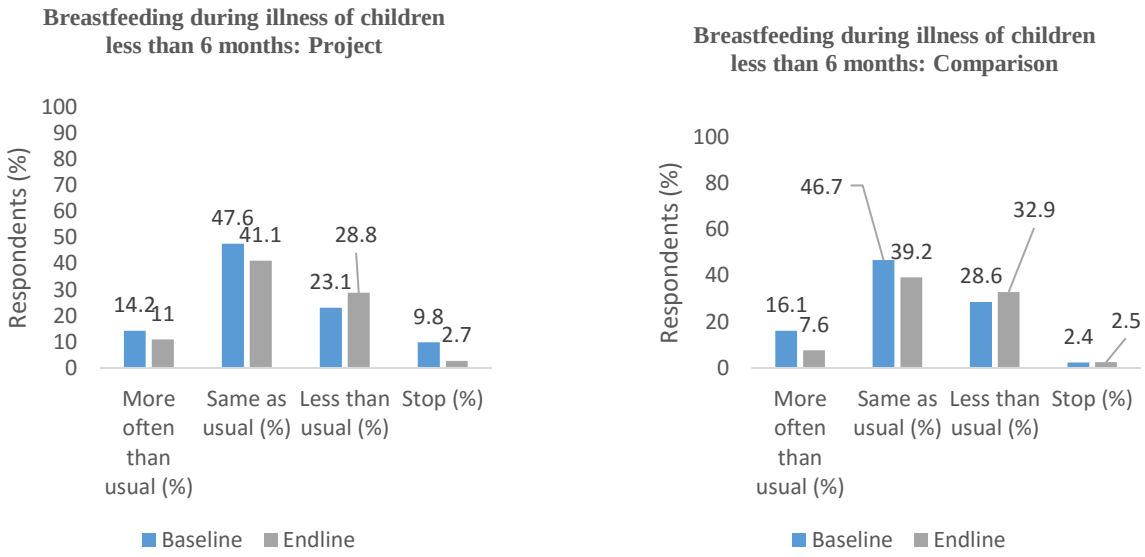
In project area, percentage of children who suffered from jaundice, typhoid, pneumonia, malaria, cough and cold have decreased in project area. Similarly, in comparison areas, children who suffered from typhoid, pneumonia and malaria have decreased. However, incidence of diarrhea has increased. This could be because this study was conducted during rainy season. The impact of improved wash practices, sanitation facilities and IYCF practices can be seen on the decreased incidences of illness.

Table 36 : Percentage of children in the age group of 6 - 59 months who suffered from various illnesses in the last three months

Health Morbidity	Base Line		End Line	
	Project (N=400)	Comparison (N=383)	Project (N=191)	Comparison (N=207)
Jaundice	2.2	0.7	0	1.4
Typhoid	1.4	1.1	0.5	0.5
Diarrhoea	5.5	8	9.9	14.5
Pneumonia	4	2.6	3.7	2.4
Malaria	5.5	9.1	3.1	4.3
Cough and cold	50.7	52.4	47.6	58.5
Fever	76.8	71.2	76.4	77.3

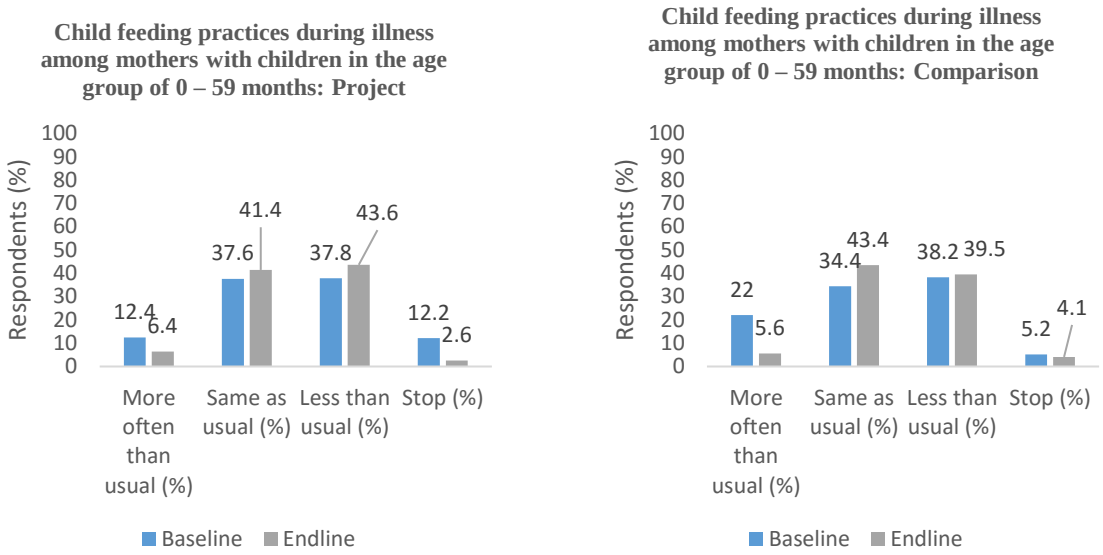
In both project and comparison areas, percentage of women who had breastfed "less than usual" is found to be high. And percentage of women who had breastfed "more than usual" and "same as usual" is found to be low across both areas. Details are given in figures below.

Figure 56: Breastfeeding during illness of children less than 6 months



Percentage of respondents who continued to feed same amount of diet to children have increased in both project and comparison. Similarly, percentage of respondents who "Stopped" giving have also decreased across both areas.

Figure 57: Child feeding practices during illness among mothers with children in the age group of 0 – 59 months



4.5.2 Awareness about Malnutrition and Health Facilities among mother

The lack of awareness among rural mothers is one of the contributing factor for increased malnutrition levels. Mothers were enquired about the symptoms of Malnutrtion. Analysis reads that awareness about symptoms of malnutrition has increased for project and comparison areas in endline. At project area during endline 54.6% respondents were knowing wasting as a symptom of mlnutrition, 35.8% were know underweight as a symptom of malnutrition. Similar, trend observed in comparison area.

Figure 58: Percentage of mother reporting various symptoms of malnutrition in Project area

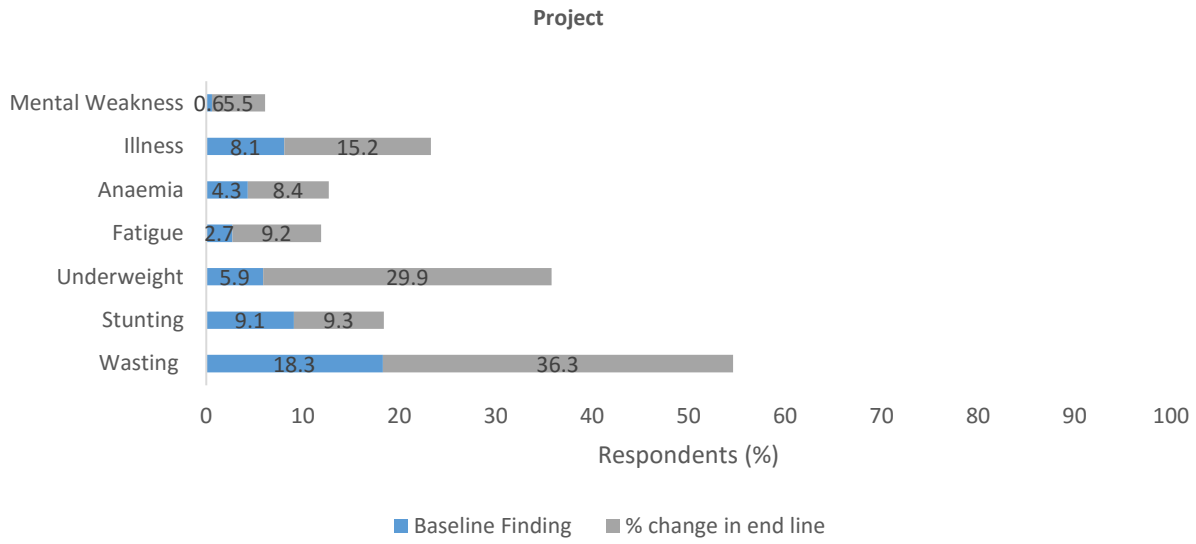
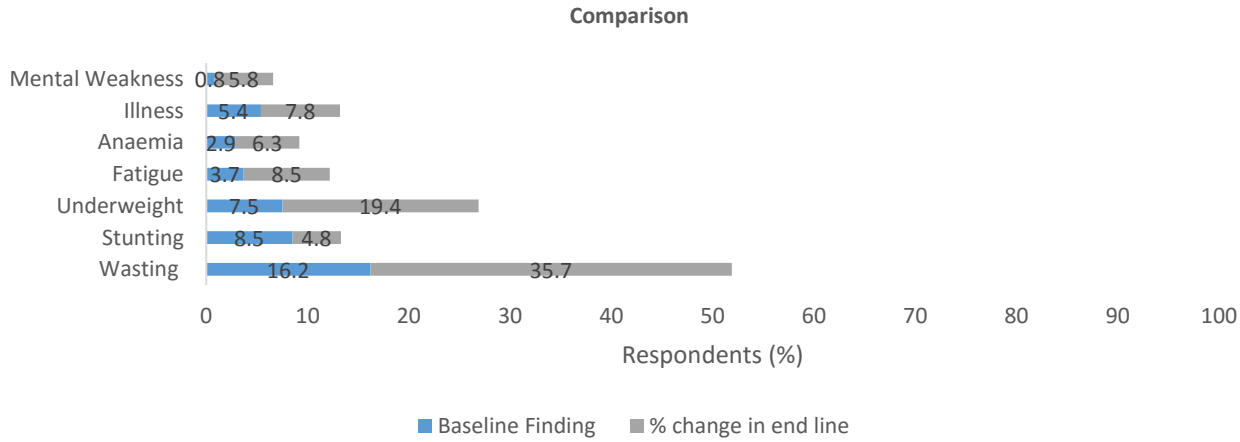


Figure 59: Percentage of mother reporting various symptoms of malnutrition in Comparison area



Qualitative findings on awareness about malnutrition

Underweight ("vajan kam hona") and wasting ("bacha dubla pathla hona") are the common symptoms reported by the women respondents in qualitative assessment. Along with this weakness, being ill most of the time and decreased diet are the other symptoms reported in the FGD discussion by women. A respondent of a FGD 104 has reported that increased size of the head and thinners body size of the child and another respondent from the same FGD group reported that crossing red line in tape (MUAC) arm measurement is also indicates the malnutrition status of the child. Some of the respondents are also aware about treatment facility in district hospital for mal nutrient children.

" child become very thin, stomach will become bigger and legs will shrink. Also, child will get tired more often…… If child is weak we have feed him khichdi (Poridge), milk, fruits… Should take the child to sadar hospital or to sub centre" …… FGD 104

4.5.3 Child Vaccination

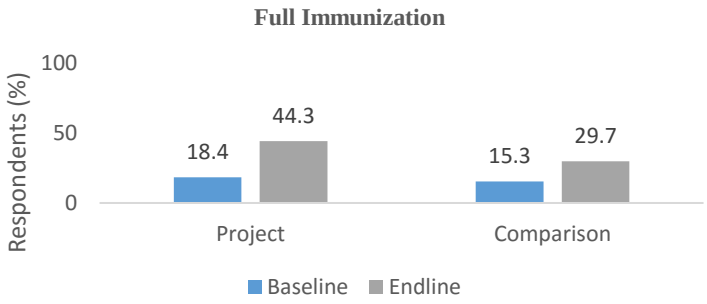
Childhood vaccination may protect children's nutritional status and lead to improved child growth in developing countries. It was observed that fully immunized children had better nutrition status. Significant association was found with immunization status of the pre-school child with underweight. also, it was found majority of children were malnourished and most of them were unimmunized[41].

The child vaccination data were collected through child vaccination card. The below table capture vaccination statistics for children of age 12 to 23 months. In project block all respondents received at least one vaccine. Percentage of respondents have increased for all the vaccines in end line for project area. Similarly, for comparison areas, respondents have increased for all the vaccines except for BCG vaccine where it has decreased. The percentage of fully immunized was increased from 18.4% to 44.7% for project area.

Table 37 : Child vaccination data - Children in the age group of 12-23 months

	Baseline		End line	
	Project Block (%) (n=152)	**Comparison Block (%) (N=150)**	**Project Block (%) (N=140)**	**Comparison Block (%) (N=138)**
Not received any vaccination	2.6	9.3	0	1.4
Received BCG vaccine	50.7	42	57.1	38.4
Received 3 doses of DPT vaccine	47.4	35.3	74.3	79.7
Received 3 doses of polio vaccine	44.1	35.3	52.1	36.2
Received measles vaccine	43.4	34.7	100	93.5
Received Hepatitis B vaccine	23.7	51.2	95	89.9
Vitamin A dose	27.3	19.5	86.6	81.2

Figure 60 : Percentage of fully immunized children

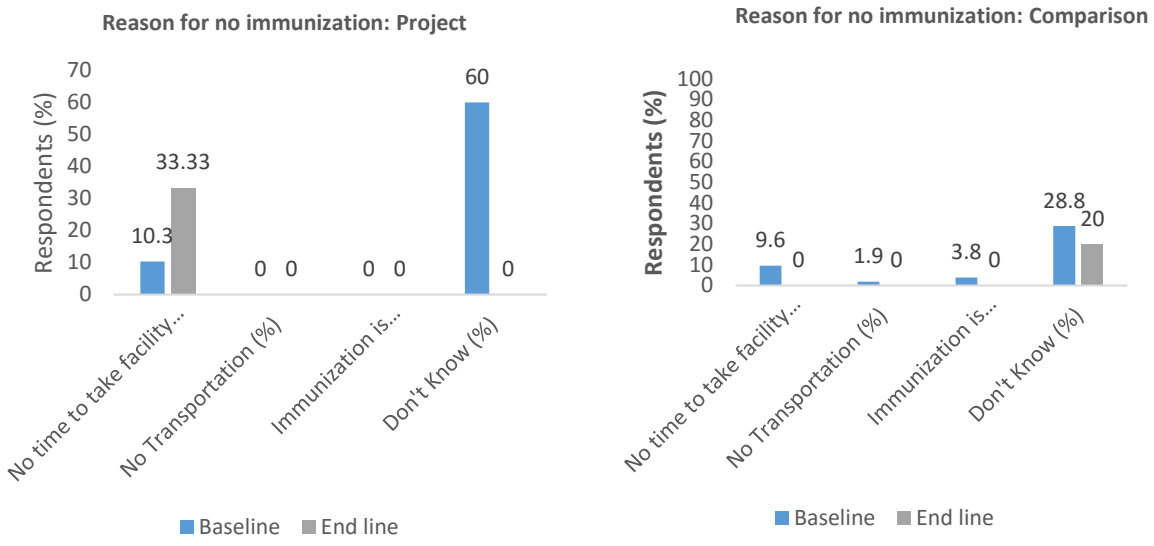


Percentage of respondent's children who were fully immunized were increased for project (26.3%) as well as comparison (14.4%) area from baseline values. The 11.5 percentage change happened in the project area which could be attributable to intervention.

This question was asked to only to those respondents who received not a single vaccine and mother of child age between 0 to 59 months. In endline for project area value of those indicators has declined which were prevalent reasons during baseline such as "don't know". However, ironically, value of "No time to take facility" has increased for project area. Details are given in the figures below.

[41] The effect of vaccination on nutritional status of pre-school children in rural and urban Lucknow

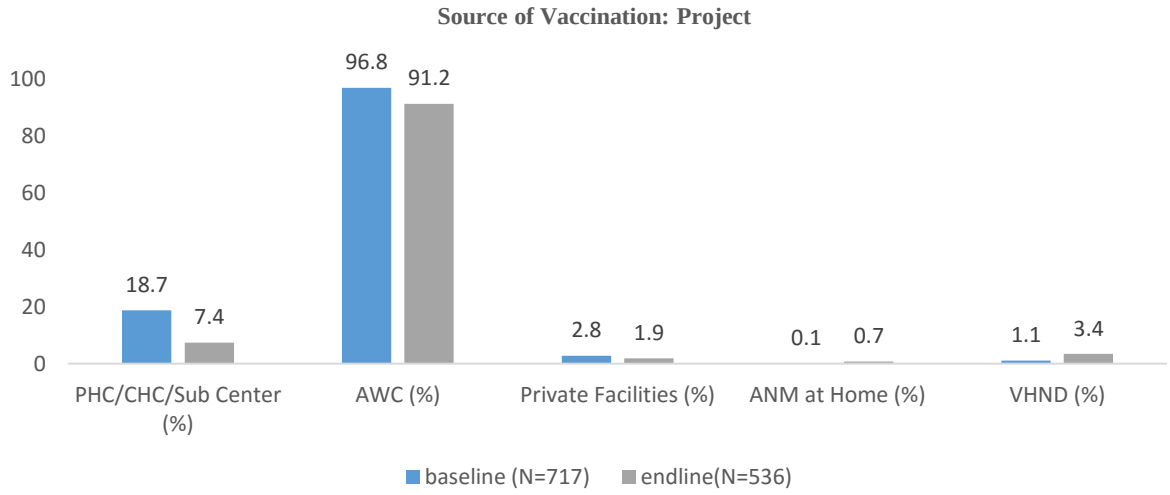
Figure 61 : Reason for no immunization



4.5.3.1 Source of vaccination

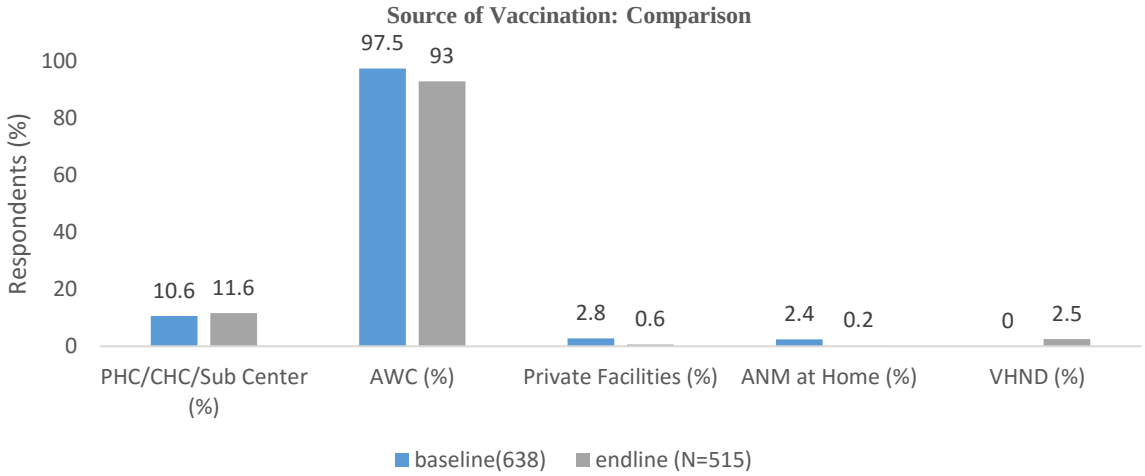
In project area, most of the respondents reported that they have received vaccination for their children at Anganwadi center as in baseline. Reason could be AWC are used for VHND too at most of the places and respondents have reported accordingly.

Figure 62 : Source of vaccination: Project area



Similarly, comparison area followed similar trend which is noted in project area. Percentage of respondents availing vaccination services from PHC/CHC/sub-centre has also increased in comparison areas.

Figure 63: Source of vaccination: Comparison Area



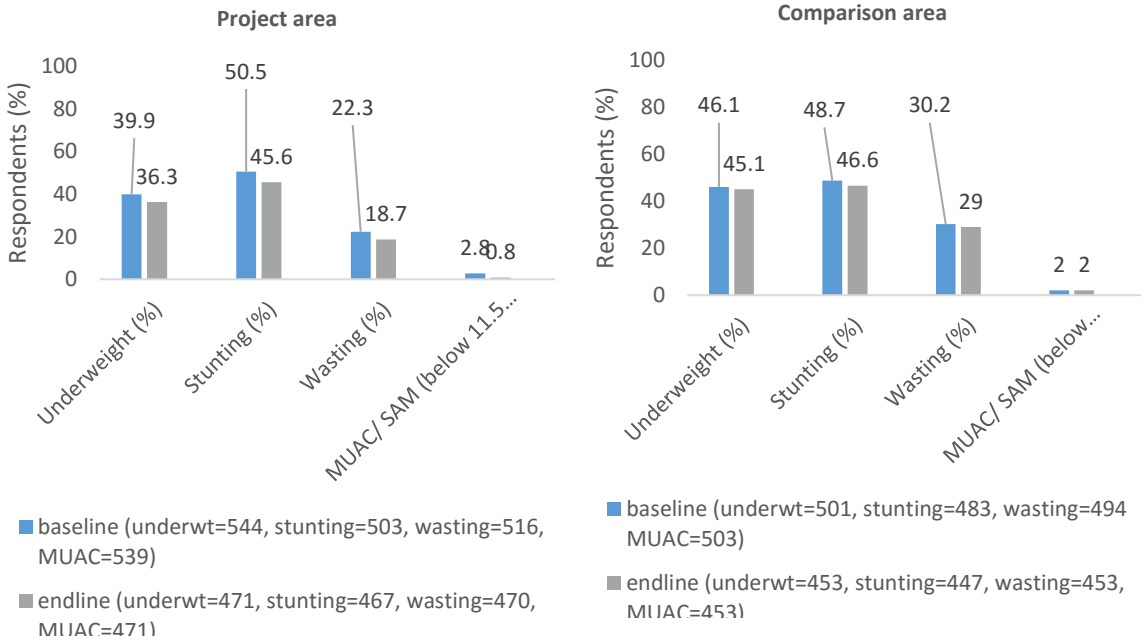
4.5.4 Status of Malnutrition

The World Bank estimates that India is one of the highest ranking countries in the world for the number of children suffering from malnutrition. In India 44% of children under the age of 5 are underweight.

The current chapter describes the status of malnutrition through wasting, stating, underweight and SAM indicators. To calculate indicators values in end line, the height, weight and MUAC of the children were measured for children of age between 6 to 59 months. The malnutrition figures are calculated using WHO's ANTHRO + software. Overall 4 categories of malnutrition: Underweight (WAZ), Stunting (HAZ) and Wasting (WHZ) have been reported. Based on the MUAC scores obtained SAM children are identified (<11.5 cmts). Comparison has been made baseline values and end line values.

4.5.4.1 Malnutrition level among children in age group of 6-59 months

Figure 64: Overall malnutrition level among children in age group of 6-59 months: Project and Comparison



In end line all the indicators pertaining to malnutrition were decreased both in project and comparison area. Wasting has decreased by 3.6% for project area where as for comparison are the value is 1% in end line from baseline value. The differential impact of project Karuna is 2.1% (DID) on wasting. Further, values of stunting have reduced to up to 4.9% in project area and 2.1% in comparison area. The differential impact of the project intervention for stunting is 2.8% (DID) . Similar the rates of underweight has reduced up to 3.6% in project area and 1.2% in comparison area. Attributable change due to project intervention is 2.2% (DID). In same lime value of SAM (MUAC <11.5 cm) have reduced up to 2% in project area but, there is no reduction in the values of SAM in comparison area. The change due to project intervention in reduction of SAM is 1.9% (DID). The differential analysis tells us that the effect of intervention, has led to a positive change on the impact variable i.e. wasting, stunting, underweight and MUAC levels of children in project area. But, this change is found to be statistically insignificant at 95% confidence level as denoted by the high p-value[42] (>=0.05%). P-values found be high due to low sample size.

4.5.4.2 Distribution of malnutrition values by Demographic categories

Percentage reduction in the malnutrition values of female children are better in project area than comparison area. In values of wasted female children remained same both in baseline (18.8%) and end line (18.9%).

Table 38: Distribution of malnutrition figures by gender categories in project and comparison area's

Background Characteristics		EVLAUTION Phase	Underweight (%)		Stunted (%)		Wasted (%)		SAM (MUAC<11.5) (%)		N	
			P	C	P	C	P	C	P	C	P	C
Gender of children in 6 months to 59 months of age	Male	Baseline	43.5	56.3	47.7	51.9	25.7	29.1	2.6	2.4	272	253
		End line	38.6	48.2	46.5	48.5	18.6	31.5	0.8	1.7	259	232
	Female	Baseline	47.8	44.6	53.3	45.6	18.8	31.2	2.8	1.6	288	252
		End line	33.7	41.7	44.7	44.5	18.9	26.2	0.9	2.3	211	221

Values of malnutrition indicators have reduced over the period of three years in all caste categories. Only the rates of underweight in general category (35.7%) and values of wasted in SC categories (18.7%) are reading higher than base line values.

Further comparative analysis of is of religion categories and Malnutrition indicators reads the reduction in malnutrition values among Hindu respondent's than Muslim population.

When compared to literacy levels of the respondents to Malnutrition indicators the values are higher among illiterate respondent than literate. Similar tent could be seen among the respondents of with no schooling and with schooling. Respondents falling under highest wealth index quintile has shown a reduces values of malnutrition than lowest quintile. There is a slight increase in values of underweight and MUAC in middle wealth index quintile.

[42] Wasting p-Value : 0.614, stunting p-Value :0.529, Underweight p-Value : 0.598, MUAC p-Value 0.106

Table 39 : Distribution of malnutrition figures by selected background characteristic of mothers in project block of Jharkhand

Background Characteristics		EVLAUTION Phase	Underweight (%)	Stunted (%)	Wasted (%)	SAM (MUAC<11.5) (%)	N
Caste	General	Baseline	31.3	43.8	20.8	4.2	48
		End line	35.7	39.1	26.2	0	42
	SC	Baseline	45.2	71	9.7	6.5	31
		End line	37.5	48	18.7	2.1	48
	ST	Baseline	44.2	56.4	24.2	2.8	326
		End line	39.9	49.8	18.6	1.2	258
	OBC	Baseline	44.6	46.7	27	2.2	139
		End line	28	38.6	15	0	120
Religion	Hindu	Baseline	44.8	55.7	23.8	3.2	479
		End line	36.4	44.1	18	0.6	316
	Muslim	Baseline	10.5	27.8	5.6	0	18
		End line	28.1	37.5	19.3	0	33
	Christian	Baseline	27.3	9.1	36.4	9.1	11
		End line	30.8	7.7	46.2	0	13
	Others	Baseline	41.7	50.0	27.8	0	36
		End line	39.1	56.9	17.3	1.8	110
Literacy	Literate	Baseline	41.8	46.6	24.1	2.8	253
		End line	34.2	43.1	18.1	0.7	272
	Illiterate	Baseline	44.5	59.9	23.2	3.1	289
		End line	39.2	49	19.6	1	199
Years of Schooling	More than 10 years	Baseline	41.1	38	21.1	2.7	71
		End line	35.9	41.4	19.6	0.9	117
	Less than 10 years	Baseline	41.1	48.4	26.6	2.7	184
		End line	32.2	43.8	17.5	0.6	155
	No Schooling	Baseline	45.2	61	22.3	3.2	287
		End line	39.76	49.5	19.1	1	199
Wealth Index Quintile	Highest	Baseline	40.2	43.6	24.8	3.0	99
		End line	26.2	34.4	17.7	0	130
	Second	Baseline	44.2	42.9	28.6	2.7	113
		End line	36.3	50	12.9	0	102
	Middle	Baseline	37.5	53.2	20.7	1.8	109
		End line	42.1	50.5	20	2.1	95
	Fourth	Baseline	43.1	61.8	20.6	3.9	102
		End line	34.3	45.8	17.8	0	73
	Lowest	Baseline	50.4	66.4	23.3	3.4	117
		End line	49.3	52.8	28.2	2.8	71

Qualitative findings on changes in malnutrition among children in Gumla

Beneficiaries: Most of the rural mothers who participated in FGD's had positively indicated the reduction in malnutrition in children below 5 years in their respective villages. They further attributed the reason for such reduction to increased level of awareness on dietary and IYCF practices, growth monitoring services and service of front line workers and Nutrition counsellors.

"there is lot of reduction from earlier after starting karuna project. Now we have only one or two cases of "kuposhan" (malnutrition), earlier there were many malnourished children in the village" …….. FGD 104

"Earlier ladies were not paying much attention of food. But, now it is not like that. Because of ASHA, AWW and brother from karuna project (NC) awareness has increased among women and now they pay extra attention to "khan -pan" (food intakes). Earlier there were no "jaaanch" (malnutrition assessment) now its happening. Earlier women were not eating iron tablets, now they eating. Brother (NC) identify the weak children and give counselling on food consumption" …. FGD 103

Frontline workers: Most of the AWW and ASHA workers who participated in in-depth interview acknowledged that they have noticed the reduction in number of malnourished children in their village. They have also mentioned the role of karuna project in creating awareness and NC's services in identifying the SAM children and treatment. Panchayat samitee members also indicated that cases of malnutrition among children have reduced over the period of time.

" yes, there is decrease in the number of malnourished children. Karuna project has impacted in many ways. Now women are breastfeeding their children upto six months and does not feed anything else. Also they are taking care of the child's hygiene and consume nutritious food for self" …. ASHA 102

" in our village the number of malnourished children is less now. There are changes due to karuna project" …. AWW 106

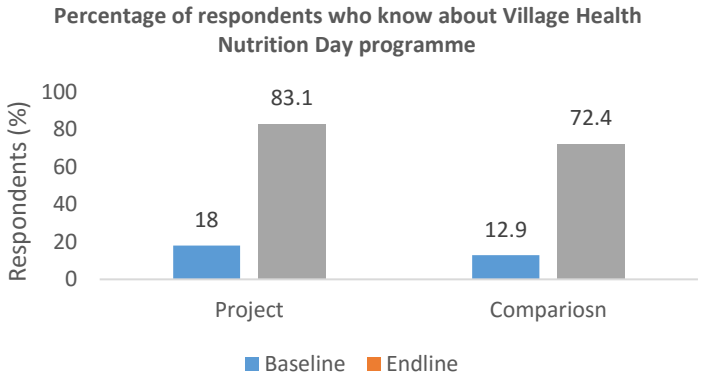
" there is reduction in matters of malnourishment in the village. Because now people slowly getting awareness on immunization, nutritious diet and hygiene"…….. PSM 102

4.6 Village Health Nutrition Day programme

The current section describes all the indicators pertaining to VHND programme. For questions pertaining to these indicators, the respondent group was mothers with children in the age group of 0-59 months and pregnant women. Comparison has been made baseline values and end line values. The indicators are categorised into the following sections.

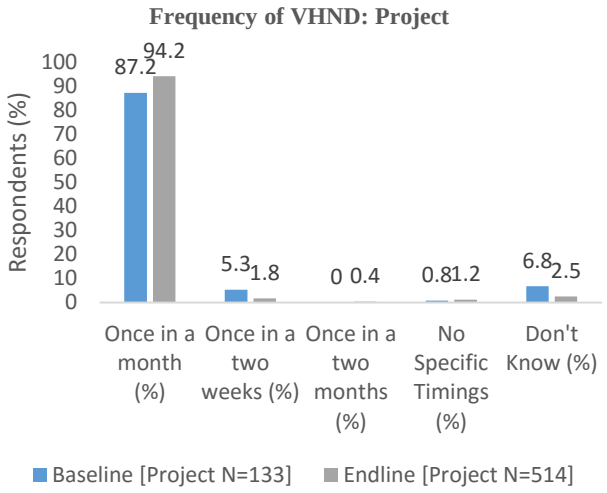
4.6.1 Conducting of VHNDs

Figure 65 : Percentage of respondents who know about Village Health Nutrition Day programme



The percentage of respondents who know about VHND were increased significantly in project as well as comparison blocks. The percentage increase in project block was more compared to comparison block. This was expected in project block as other indicators related with village institutions performed well in project block during end line.

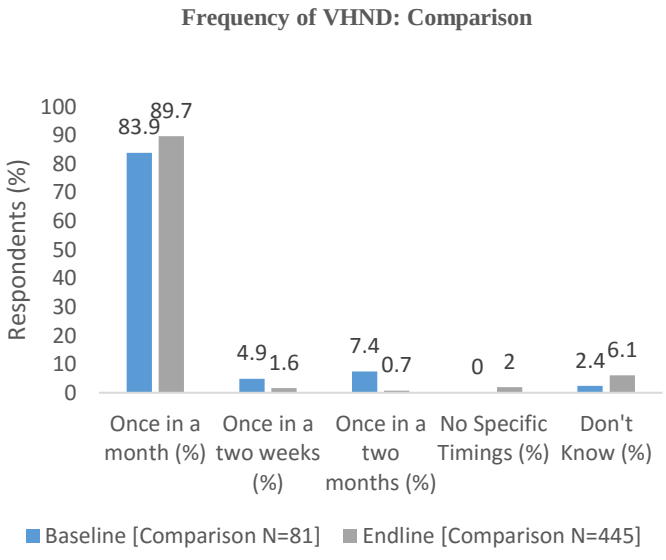
Figure 66 : Frequency of Village Health Nutrition Day programs: Project



The adjacent figure shows that a very high proportion of respondents reported once in a month occurrence of VHNDs in project block. The value has increased from BL:87.2% to EL: 94.2%. This improvement has also, affected positively on malnutrition and morbidity incidences in project block.

Figure 67 : Frequency of Village Health Nutrition Day programs: Project

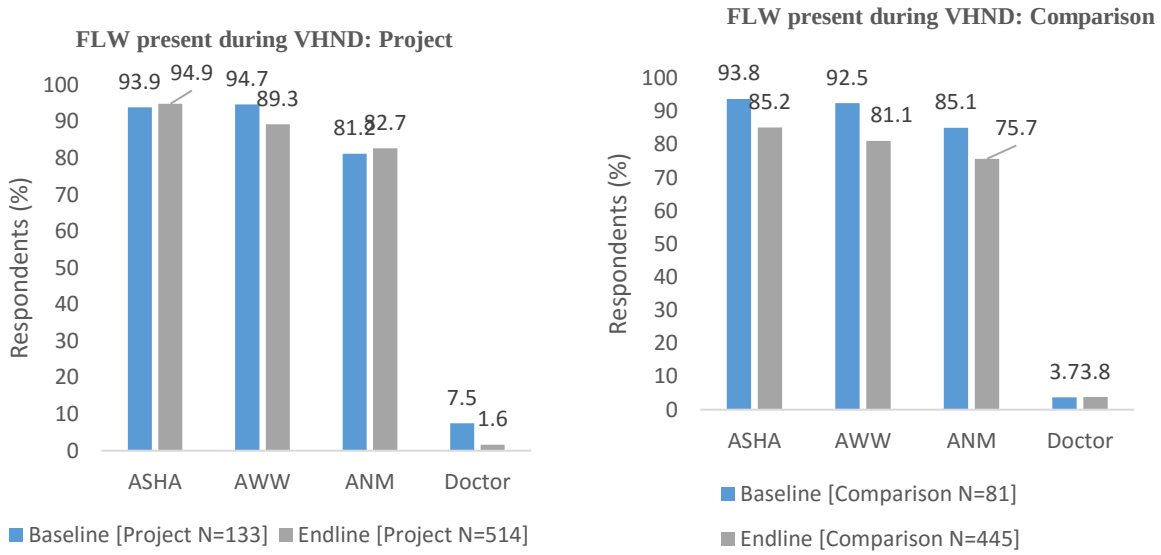
Similarly, in comparison block maximum number of respondents reported once in the month occurrence of VHND in end line. The percentage increase in value of this indicator was lower compared to project block.



In project area, all FLWs presence were increased in end line compared to baseline. This could be the result of project Karuna intervention on interdepartmental convergence and awareness generation in

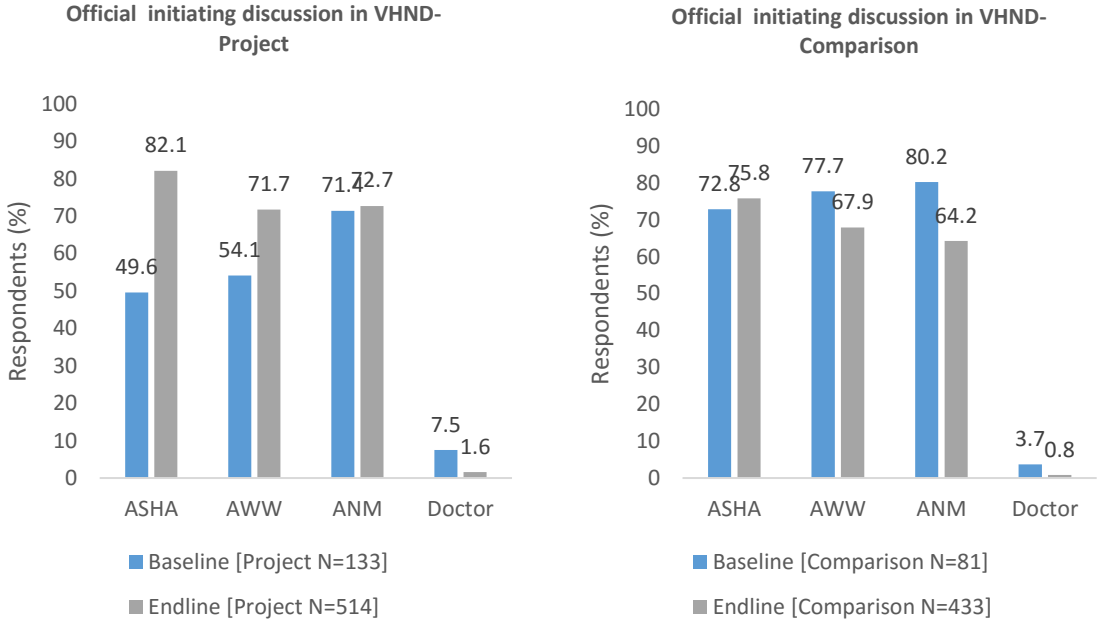
village population. In comparison area presence of FLW were decreased in end line compared to baseline.

Figure 68 : Percentage of respondents reporting on presence of FLW during Village Health Nutrition Days



In the project block, initiation of discussion of VHNDs by ASHA, AWW and ANM were increased in end line. However, in comparison block conduct of VHNDs by AWW and ANM were decreased. One thing which should be noted here the presence of doctors still remain abysmal level in project as well as comparison area.

Figure 69: Percentage of respondents reporting about various officials conducting discussions in VHNDs



4.6.2 Services given under Village Health Nutrition Day programme

Below table shows the percentage of respondents who have reported about various services being given under the VHND scheme in the project and comparison block. In project block, percentage of

respondents reported to received various services offered by VHND were increased. In comparison block, most of the services offered by VHND were decreased.

Table 40: Percentage of respondents reporting various services given under Village Health Nutrition Day scheme

Services of VHND	Baseline		End line	
	Project (N=133)	Comparison (N=81)	Project (N=514)	Comparison (N=445)
Pregnancy Registration	60	64.1	66.5	62
TT Immunization	63.1	61.7	68.1	60.7
IFA Tablets for Pregnant Women	18.7	14.8	24.7	22
Child Immunization	49.6	34.5	58.4	56.2
Take Home Ration	48.7	72.8	56.6	48.5
Antenatal Care	54.8	39.5	57.2	41.6

Discussion on important topics such as immunization, government schemes, importance of ANC and breastfeeding were increased in project area during end line. These indicators play vital role in reduction of malnutrition in children. This might be a reason behind the reduction in malnutrition and morbidity cases in project area.

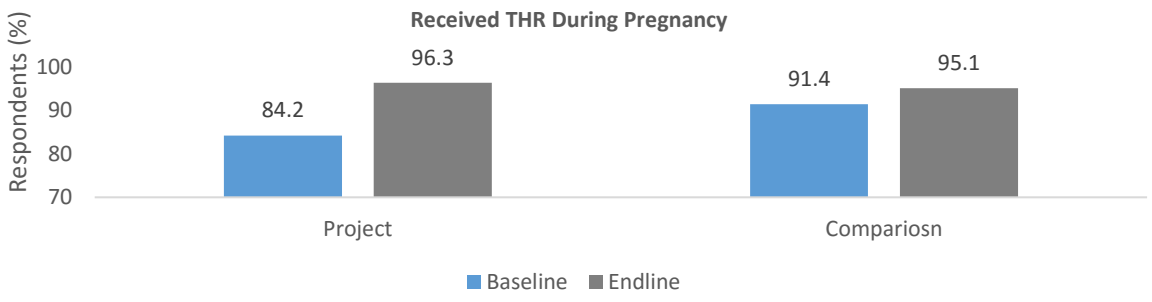
Table 41: Percentage of respondents reporting major discussion topics under Village Health Nutrition Day programme

Discussion topic	Base Line		End line	
	Project (N=133)	Comparison (N=81)	Project (N=514)	Comparison (N=445)
Importance of ANC	7.5	19.7	16.9	13
JSK/JSSK/ Other Scheme	38.8	18.5	44.6	24.7
Immunization	45.8	35.8	51.4	44.3
Breastfeeding	42.1	37	45.9	38.2
Family Planning	40.6	24.6	5.3	2.5

4.6.3 Take Home Rations under Village Health Nutrition Day Programme

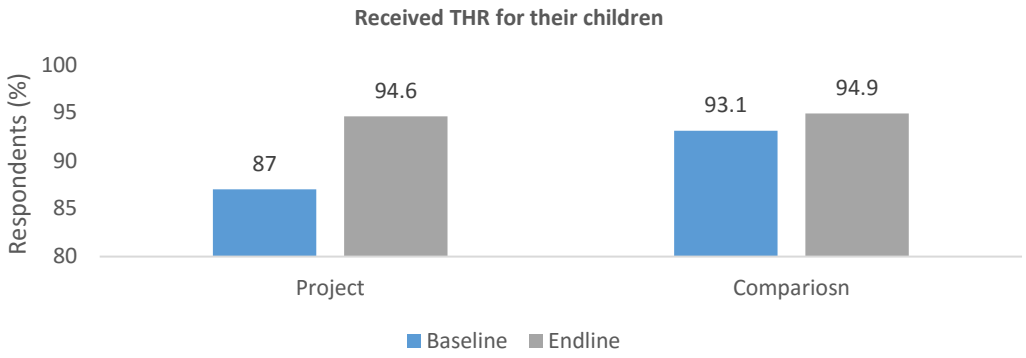
The below figure shows the percentage of respondents who knew about the VHND programme and reported receipt of THR during pregnancy. For project block percentage of respondents who received THR for their children were increased by 12.1% in end line while, in comparison area value increased by 3.7%. This could be because of institutional strengthening and awareness in residents done by project Karuna in project area (DID 8.4%).

Figure 70 : Percentage of respondents reporting receipt of THR during pregnancy under VHND programme



For project block percentage of respondents who received THR for their children were increased by 11.6% in end line while, meagre increase happened in comparison area. The differential values estimated is 5.7% which could be because of initiatives of project karuna in strengthening VHND's at village level.

Figure 71: Percentage of respondents reporting receipt of THR for their children under Village Health and Nutrition Day programme



4.6.4 Conclusion

The current study analysed the impact of project Karuna's intervention on malnutrition. This chapter compared the status of malnutrition and associated indicators during the baseline and end line in project (Gumla block) and comparison (Palkot block) area in Jharkhand. In order to achieve the aim, project Karuna mainly focused on block level inter-departmental convergence, capacity building of FLWs through trainings, BCC activities at village level and appointed nutritional counsellors to connect with local residents and to help FLWs. There are many factors, which affect the malnutrition in children such as hygiene and sanitation, pre-natal and delivery care, post-natal, IYCF, breastfeeding, immunization, morbidity etc. The study tried to capture these factors and its association with malnutrition.

In Gumla values of confounding factors for reducing the malnutrition level have shown positive changes i.e. literacy levels of respondents were higher (29.32% are having more than 10 years of education in end line), and less number of women are getting married before legal age (BL: 33% - EL:27.85%). Similarly, there is improvement in consumption of locally available nutritious food supplements such (white tubers, green and leafy vegetables, cereals and fruits), Improvements in handwashing practices, drinking water sources (BL: 66.8% to EL: 81.8%) and sanitation facilities (BL: 6.4% to EL:15.6%). Likewise, ante natal care and proper delivery mechanism play crucial role in health of new-born child. There is substantial improvement in ANC and delivery care services from baseline to end line.

Project Karuna initiative has shown considerable improvement on IYCF indicators. Difference-in-difference analytical tool for measuring net improvement as a result of the project intervention, unveils a positive change of 3.1% percentage points in exclusively breast feeding practices. Data also indicated the slight reduction (DID 0.8%) in morbidity levels too. In other side BCC activities initiated by NC's have upgraded the awareness levels of mother on symptoms of malnutrition.

The differential improvement for full immunization seen in project areas (improvement of 25.9 %) is certainly more enhanced than witnessed in comparison areas (improvement of 14.4 percent%). This could be attributed to the supportive supervision of front line worker in delivering immunization services and THR distribution through AWC and VHND's. This along with other nutrition interlinked

factors played major role in reduction of malnutrition level in intervention areas. The SAM cases also declined in the project areas compared to comparison areas.

The proportions witnessed across all four malnutrition assessment categories viz. Stunting, Underweight, Wasting and SAM, have seen a decline from baseline to end line across the project district. The percentage decrease in cases of underweight is 3.6%, stunting is 4.9%, wasting is 3.6% and in case of SAM it is 2% from baseline to end line in project area. The improvement shown in baseline and end line comparison could be as a result of the unique initiatives of the project karuna such as inter-departmental convergence and induction NC's at village level which had acted as the bridge between beneficiaries and quality of services.

5 Best Practices

5.1 Background

A best practice is a technique or methodology that, through experience and research, has proven to reliably lead to a desired result. The term is used frequently in areas such as health, government administration, the education system, project management, and others. Usually it is an iterative (meaning repetitive) development process, which progresses in incremental stages, helps to maintain a focus on manageable tasks and ensures that earlier stages are successful before the later stages are attempted. But, in this context this chapter attempts to identify a practice which was more effective in producing the expected results and sustainable.

5.2 Methodology for selecting the "best practice"

In an ideal situation identifying the "best practices" involves judgement. Such judgment requires prior analysis of criteria's such as effectiveness, efficiency and relevance [43]. This is because a "Best Practice" can be anything that works to produce results without using inordinate resources, in full or in part, and that can be useful in providing lessons learned.

The recognition of best practices is somewhat subjective, but to increase the "objectivity" of identifying a "best practice," following criteria was used:

- Recognized by beneficiaries and the community leaders
- Recognized by the community health workers
- Recognized by industry expert's or health officials
- Performance of the practice
- Sustainability

Through Focused group discussion with beneficiaries and In-depth interviews with various partners of project such as ASHA workers, Anganwadi workers, Panchayat Samiti Members, Nutritional counsellors, CDPO, block medical officers, Block Education Officer and Project Coordinators evaluation team has enquired about the various practices initiated by the Project Karuna for its efficiency and success. Responses for these enquiries has helped to recognise the "best practices"

5.3 "Best practices" recognised

After a thorough review following practices has been referred as best practices by various stakeholders of project Kaurna.

- Inter-Sectoral Collaboration and Leadership Actions for Nutrition Security through the block operation plan
- Services of Nutritional Counsellors
    - Case management of severe Acute Malnourishment (SAM)
    - Transforming lives through counselling- Home visits and Regular follow up
    - BCC activities such as Healthy baby show
- Improved services of front line workers.

[43] Guide for Documenting and Sharing "Best Practices" in Health Programmes, World Health Organization, Regional office for Africa

5.3.1 Inter-Sectoral Collaboration and Leadership Actions for Nutrition Security through the block operation plan

Qualitative finding gives the substantial evidence inter-sectoral collaboration at block level for nutrition security. Efforts were mad do bring together the department of health, women and child development, Panchayat Raj Institute and water sanitation at block level. The functioning of Block level monitoring committees has been streamlined by project Karuna intervention. Meeting were held regularly and issues related to malnutrition, VHND, distribution of folic acid were discussed monitored closely by the monitoring committees in past three years

"Earlier it was only our (ICDS) department working. Now the health department fully cooperates with us. There is a lot of improvement seen in kids. … Earlier it was very challenging as there was confusion of roles and responsibilities. Now since all the departments sit together for the problems. Easier solution is found for problem. Mutual decision is taken on the exact role each department will have." …… CDPO 201

"convergence is not a new thing. It is not that it was not done earlier. It became a medium and now we are sitting down for meeting regularly. Earlier it was not like this that this thing should be discussed … we would join the meeting. There would be a letter and we would discuss it …if we remembered we would discuss it otherwise we would even forget to discuss about it. But now there is specific agenda and we are discussing about it and because of the specific discussion there is effect on this"……..BEO 101

Block level coordination between various department has influenced and improved the coordinated services of ASHA, AWW and ANM's at village level. Project Kaurna has initiated the capacity building activities for frontline workers and convergent efforts were made to improve the maternal and child health through Village Health and Nutrition days. Most of the ASHA's and AWW's stated in in depth interview that their service was improved because of working together. Quantitative data reads the increased involvement of ASHA, AWW and ANM's in VHND activities.

"My service quality has improved by working with other department people in village like we I get to learn a lot from health department (ANM/ASHA) people……. Some time I have to leave my work to go with them for home visit. Sometime if immunization is not done properly or weights were not measured not properly as per Karuna project officials instruction we will do it again… so we do not face any problem" ….. AWW 205

The quantitative data proves the convergent activities at village level has performed well in comparison with base line values specially the area of improvement in VHND services and availing take home ration from VHND by mothers and pregnant women. Further these values can easily by carried out at village level without the help of Kaurna project with necessary instructions and monitoring processed by the concerned authority.

5.3.2 Services of Nutritional Counsellors (NC's)

Kaurna project has inducted the Nutritional counsellor at panchayat level to ensure effective implementation of the project at grassroots level. Prior to the induction NC's were given with detailed training on IYCF practices, IPC, CMAM, VHSNC & VHND, food nutrition values and recipes on locally available foods, supportive supervision, Mata samite and MIS processes.

NC's main responsibility was to conduct home visit for imparting counselling services to pregnant women & mothers, screening the children (6 to 36 months) for identifying SAM among them. Their contribution in reduction in Malnourishment among children is well acknowledged by beneficiaries, ASHA and AWW's and other stake holders of the project.

" xxx didi (NC) used to come. She used to check children and measure them and if the weight is less she would refer you to hospital and tell you take treatment" ….. FGD Khora

" they used to come home and gave information on jaccha bacha (maternal and child health),.. he told to feed child only milk till 6 months, not to decrease the food intake because children will become kamjor (weak)… Gave information on cleanliness…. Also measure malnourishment in children" … FGD 201

85% and 74% of mother reported in Gumla and Varanasi project area that they have receive Growth monitoring services for their children. Values are higher when compared to comparison areas. This indicate the contribution of NC's in project area for growth monitoring services. Similarly, the decreased values of malnutrition indicators points out the treatment services and regular follow up of SAM children by NC's contribution in project area.

Table 42 : Percentage of mothers reporting receiving growth monitoring service for child.

	Gumla		Varanasi	
	Project	**Comparison**	**Project**	**Comparison**
Baseline	63.6	76.5	31	19.3
End line	85.1	75.2	74.3	51.3

Along with house to house counselling services BCC activities such "healthy baby show" and puppet show's played an important role in creating awareness among the general population of project area on malnourishment related aspects.

" they conducted health baby show, in that they had given prices for most healthy baby in the village… hey have conducted puppet show also. I saw that"… FGD 2015

" in our area many programmes were conducted by the karuna people. Puppet show, healthy baby show and prabhat pheri. Villagers have participated in these programme and because of these programme awareness has increased among the people" ….. PSM 201

Many of the ASHA and AWW's have appreciated the "healthy baby show" as this has developed a competitive spirit among mothers to win prize for their child.

Over all NC's role has played a very significant role in creating awareness among the people, in improving coordinated services of frontline worker and reduced malnourishment among the children. However, continuing these service demands intensive resources. But, integrating the components of NC's with front line worker's duties with added incentives and capacity building may yield better results in decreasing malnutrition rates.

Annexure

Annexure 1: GUMLA

Figure 72: Level of worry about food availability

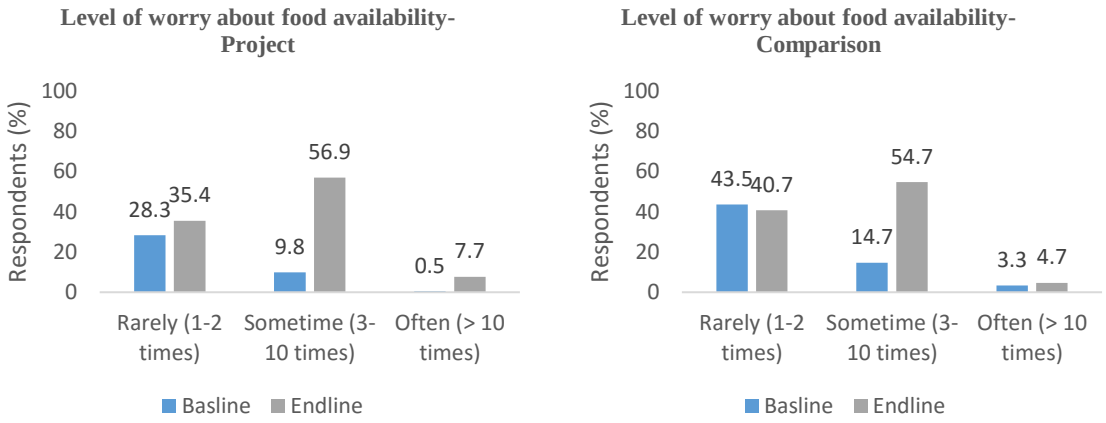
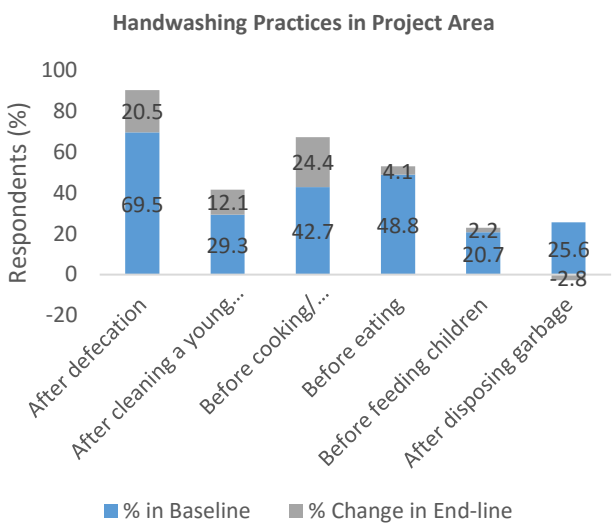


Table 43: Association of food insecurity with selected socio-economic background characteristics

Project Block					
Background Characteristics		Baseline		End line	
		Households' worry about not having enough food in the past 30 days (%)	N	Households' worry about not having enough food in the past 30 days (%)	N
Caste	**General**	5.4	74	27.8	54
	SC	2.3	43	23.7	59
	ST	9.9	446	21.8	335
	OBC	12.7	175	15.9	164
Religion	**Hindu**	10.5	648	20.8	414
	Muslim	3.4	29	12.8	39
	Christian	13.3	15	15	20
	Others	0	46	25.5	141
Comparison Block					
Background Characteristics		Baseline		End line	
		Households' worry about not having enough food in the past 30 days (%)	N	Households' worry about not having enough food in the past 30 days (%)	N
Caste	**General**	11.1	54	21.2	33
	SC	15.1	53	17.6	136
	ST	20.1	413	35.7	308
	OBC	14	107	24	125
Religion	**Hindu**	18.1	562	27.3	484
	Muslim	0	0	0	0
	Christian	5	40	30	60
	Others	32.1	28	36.7	60

Figure 73: Percentage changes in hand washing practices at selected activities among pregnant women



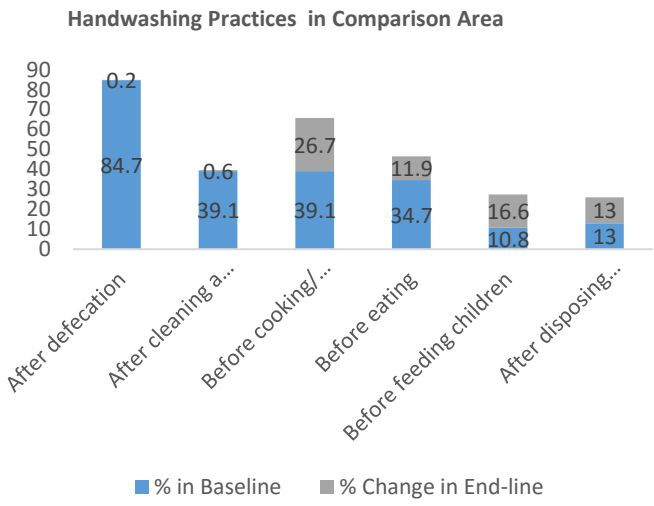


Table 44 : Access to improved source of drinking water by selected socio-economic background characteristics

Background Characteristics		Jharkhand Project Block			
		Base Line		End Line	
		Households having improved source of drinking water (%)	N	Households having improved source of drinking water (%)	N
Caste	General	58.1	74	90.7	54
	SC	58.1	43	86.4	59
	ST	67.7	446	76.1	335
	OBC	70.5	175	88.4	164
Religion	Hindu	68.8	648	80.7	414
	Muslim	62.1	29	97.4	39
	Christian	20	15	85	20
	Others	56.5	46	80.1	141
Background Characteristics		Jharkhand Comparison Block			
		Households having improved source of drinking water (%)	N	Households having improved source of drinking water (%)	N
Caste	General	48.1	54	78.8	33
	SC	60.4	53	76.5	136
	ST	65.9	413	68.2	308
	OBC	70.1	107	80.8	125
Religion	Hindu	65.8	562	76.9	484
	Muslim	0	0	0	0
	Christian	55	40	53.3	60
	Others	53.6	28	66.7	60

Table 45: Access to improved sanitation facilities by select socio-economic background characteristics

Project Block					
Background characteristics		Baseline		End line	
		Households having improved sanitation facilities (%)	N	Households having improved sanitation facilities (%)	N
Caste	**General**	21.6	74	14.8	54
	SC	2.3	43	10.2	59
	ST	4.3	446	17.3	335
	OBC	6.4	175	14.6	164
Religion	**Hindu**	4.9	648	13.3	414
	Muslim	37.9	29	38.5	39
	Christian	20	15	30	20
	Others	2.2	46	14.2	141
Control Block					
Background characteristics		Households having improved sanitation facilities (%)	N	Households having improved sanitation facilities (%)	N
Caste	**General**	3.7	54	6.1	33
	SC	0	53	5.9	136
	ST	1.7	413	8.4	308
	OBC	6.5	107	13.6	125
Religion	**Hindu**	2.7	562	8.3	484
	Muslim	0	0	0	0
	Christian	2.5	40	11.7	60
	Others	0	28	10	60

Annexure 2: Varanasi

Figure 74: Level of worry about food availability

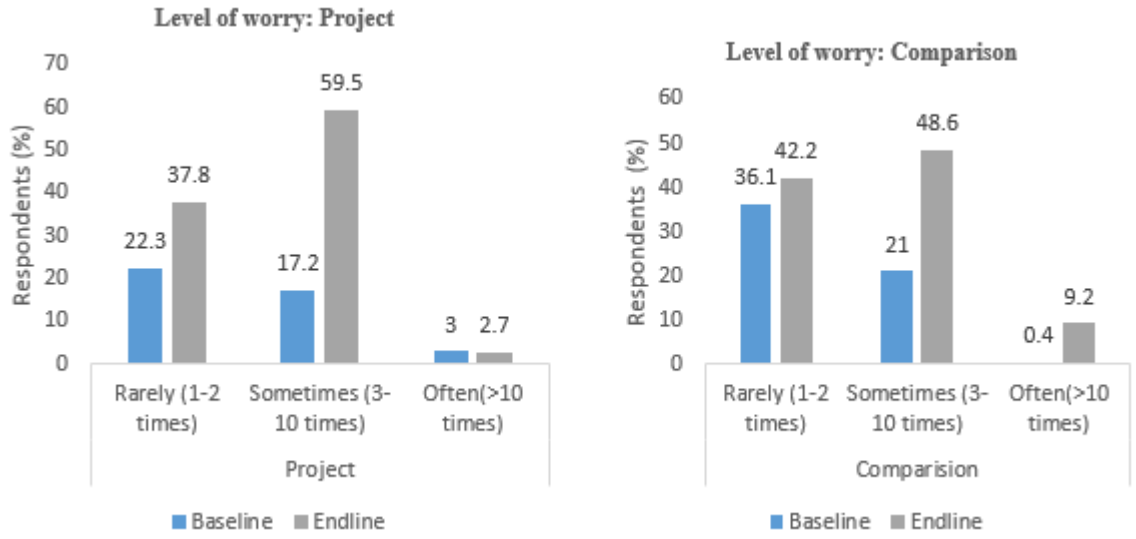


Table 46: Association of food insecurity with selected socio-economic background characteristics

Background Characteristics		Baseline: Project		End line: Project	
		Households' worry about not having enough food in the past 30 days (%)	N	Households' worry about not having enough food in the past 30 days (%)	N
Caste	General	9.8	122	11	127
	SC	19.8	182	16.8	197
	ST	7.1	14	13.6	22
	OBC	12	421	9.1	263
Religion	Hindu	13	694	10.7	563
	Muslim	17.8	45	13.1	45
		Baseline: Comparison		End line: Comparison	
Background Characteristics		Households' worry about not having enough food in the past 30 days (%)	N	Households' worry about not having enough food in the past 30 days (%)	N
Caste	General	16.4	189	13.2	91
	SC	25	168	28.2	206
	ST	23.1	13	15.4	26
	OBC	12.6	451	12.7	268
Religion	Hindu	16	652	19.1	533
	Muslim	17.1	82	10.3	58

Figure 75: Percentage changes in hand washing practices at selected activities among pregnant women

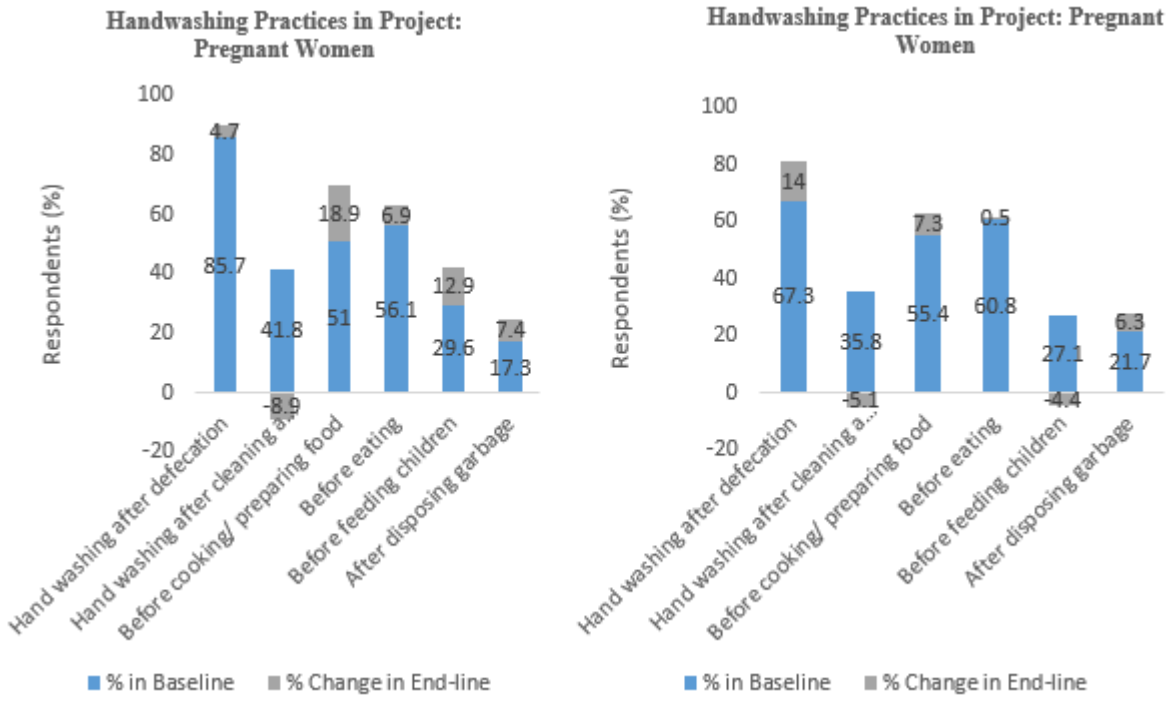


Table 47 : Access to improved source of drinking water by selected socio-economic background characteristics

Baseline: Project				End line: Project	
Background Characteristics		**Households having improved source of drinking water (%)**	**N**	**Households having improved source of drinking water (%)**	**N**
Caste	**General**	88.5	122	100	127
	SC	95.6	182	99	197
	ST	92.9	14	100	22
	OBC	97.3	421	97.3	263
Religion	**Hindu**	95.4	694	98.6	563
	Muslim	93.3	45	97.8	45
Baseline: Comparison				**End line: Comparison**	
Background Characteristics		**Households having improved source of drinking water (%)**	**N**	**Households having improved source of drinking water (%)**	**N**
Caste	**General**	95.8	189	98.9	91
	SC	91.7	168	98.1	206
	ST	100	13	96.2	26
	OBC	93.3	451	96.3	268
Religion	**Hindu**	93.4	752	97	533

	Muslim	96.3	82	100	58

Table 48: Access to improved sanitation facilities by select socio-economic background characteristics

Baseline: Project				**End line: Comparison**	
Background characteristics		**Households with improved sanitation facilities (%)**	**N**	**Households with improved sanitation facilities (%)**	**N**
Caste	**General**	44.3	122	64.6	127
	SC	26.9	182	26.4	197
	ST	7.1	14	9.1	22
	OBC	25.3	421	46.8	263
Religion	**Hindu**	27.6	694	42.8	563
	Muslim	31.1	45	40	45
Baseline: Comparison				**End line: Comparison**	
Background characteristics		**Households with improved sanitation facilities (%)**	**N**	**Households with improved sanitation facilities (%)**	**N**
Caste	**General**	28	189	54.9	91
	SC	8.3	168	11.2	206
	ST	7.7	13	26.9	26
	OBC	23.3	451	29.1	268
Religion	**Hindu**	19.3	752	24.2	533
	Muslim	34.1	82	50	58