



Reaching Disadvantaged Groups through Peer to Improve Health and Nutrition Behaviors in Four Districts in Nepal



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By: Save the Children, Suaahara Program

Consultant: Valley Research Group

Acknowledgements

This study was carried out to assess the effect of mobilizing peers on improving health and nutrition behavior of women and children of DAG VDCs in *Suaahara* program districts. The study, baseline and endline, was conducted in 2014 and 2015 respectively in the selected *Suaahara* districts. The populations for this study constituted the 1000 days mothers (mothers of children between 6 months to 23 months) of the study areas. A total of 1890 mothers (945 from intervention and 945 from comparison areas) were included in each round of survey.

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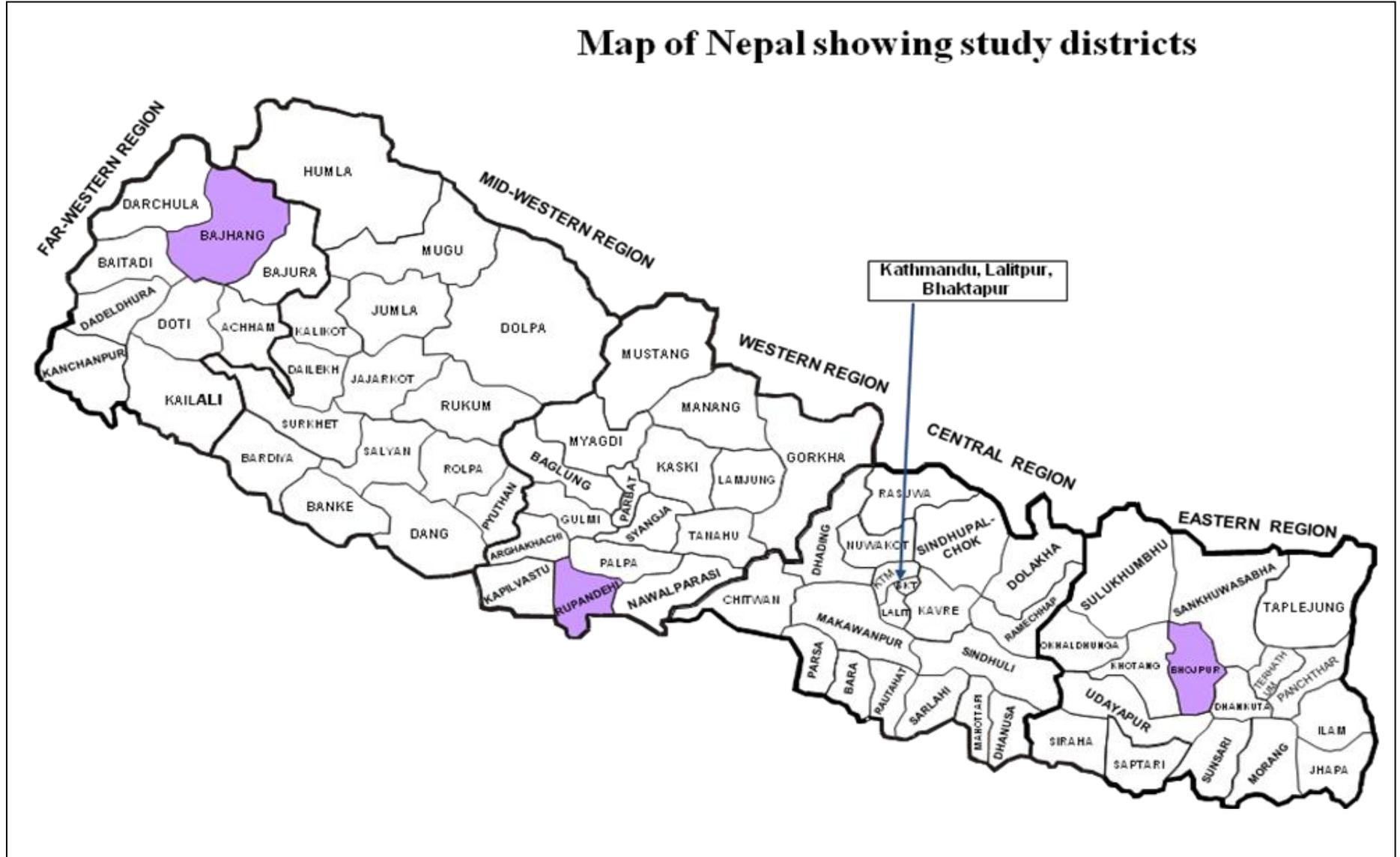
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Map of Nepal showing study districts



List of Abbreviations

ANC	Antenatal Care
ANM	Assistant Nurse Mid-wife
ARI	Acute Respiratory Infection
BCC	Behavior Change Communication
BL	Baseline
DAG	Disadvantaged Group
DID	Difference in Difference
EL	Endline
FCHV	Female Community Health Volunteer
FPAN	Family Planning Association of Nepal
GESI	Gender Equality and Social Inclusion
GoN	Government of Nepal
HFP	Homestead Food Production
HMG	Health Mother Group
HW	Health Worker
IYCF	Infant and Young Child Feeding
MCHW	Maternal and Child Health Worker
MDA	Minimum Dietary Diversity
MMF	Minimum Meal Frequency
NDHS	Nepal Demographic Health Survey
NGO	Non-Governmental Organization
ORS	Oral Rehydration Solution
PF	Peer Facilitator
PHCC	Primary Health Care Center
PNC	Postnatal Care
SBCC	Social and Behavior Change Communication
SLC	School Leaving Certificate
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendant
UMN	United Mission to Nepal
USAID	United States Agency for International Development
VaRG	Valley Research Group
VDC	Village Development Committee
VHW	Village Health Worker
WASH	Water, Sanitation and Hygiene

INTRODUCTION

1.1 *Suaahara* background

Nepal is one of the most undernourished countries in the world. Approximately 41% of the under-five children suffer from stunting, 11% from wasting, and 29% are underweight.¹ Socio-economic, geographic, and environmental factors all contribute to the poor nutritional status of Nepalese people. The Nepal Demographic and Health Survey (NDHS) 2011 revealed that 56% of children under-5 in the lowest wealth quintile was stunted while only 26% of children under-5 in the highest wealth quintile was stunted. Similarly, the survey also showed that while 33% of children under-5 in food secure households was stunted, 49% of children under 5 in households with severe food insecurity was stunted. Children in households with severe food insecurity and in the lowest wealth quintile have much higher rates of stunting than the overall stunting rate of 41% (NDHS 2011)¹. If Nepal is to make significant progress in improving the rates of stunting among children under-5 then concerted efforts to address the needs of DAGs must be prioritized.

USAID/Nepal has made substantial contributions to health and nutrition in Nepal. With a view to support the Government of

Nepal (GoN) in its effort to improve nutritional status of women and children, USAID/Nepal has awarded a five year integrated nutrition program, *Suaahara*. The salient feature of the program is that it uniquely integrates nutrition, health, hygiene, agriculture, and family planning activities at the household and community level to improve access to and consumption of nutritious foods. The program has thus far been implemented in 41 vulnerable districts with poor food security and nutrition indicators. The overall goal of the *Suaahara* is to improve the nutritional status of pregnant and lactating women and children under two years of age directly addressing the vulnerable points of development which result in stunting. The project does this by improving water, sanitation and hygiene behaviors; health service utilization; access to locally available nutrient-dense vegetables and animal source food through homestead gardens and poultry; and local governance. *Suaahara's* cross-cutting themes include social and behavior change communication (SBCC), gender equality and social inclusion (GESI), capacity building, and learning through continuous monitoring and evaluation.

1.2 Programmatic context

While the mandate is to reach all 1000-day mothers/households within their 41 districts of operation, *Suaahara* specifically focuses to reach the traditionally disadvantaged groups. These disadvantaged groups are often the poorest of the poor and have historically suffered discrimination or are cut off from

¹ Ministry of Health and Population (MOHP) [Nepal]. *New ERA, and ICF International Inc. 2012. Nepal Demographic and Health Survey 2011 (NDHS 2011). Kathmandu, Nepal: Ministry of Health and Population, New ERA, and ICF International, Calverton, Maryland.*

access to basic services due to their geographic remoteness and caste system. On average, 25-30 percent of the populations in each district are members of disadvantaged groups. Using Government of Nepal criteria for identifying disadvantaged communities, *Suaahara* staff worked with local Government officials to identify disadvantaged 1,000 days households. Once identified, *Suaahara* uses multiple entry points including female community health volunteers (FCHVs), mother's groups, local community structures and its *Bhanchhin Aama* radio serial and call-in programs to bring about behavior change among these households.

However the program felt that in addition to *Suaahara*'s regular SBCC activities, targeted approach is needed to reach the disadvantaged households/ communities with nutrition and health interventions. One key approach to reach DAG households adopted by *Suaahara* is mobilization of peer facilitators. PFs were identified based on the following criteria:

- Live in a geographically remote area in a DAG community where FCHVs cannot reach frequently
- Willingness to promote nutrition behaviors in the community by sharing their experiences as a volunteer
- Has at least one child under 2 years of age
- Potential to demonstrate leadership in the community
- Currently playing a supportive role in their family (for decision maker PFs)

The PFs were selected in a participatory manner in consultation with Health Mother Group (HMG), FCHVs, and health workers of respective wards/VDCs. Since PFs are volunteers they do not receive any financial incentives. They are provided training using a modular approach into three separate modules over the course of 3-4 months. After completion of the training, PFs are integrated

into the monthly FCHV Health Mother Groups and become members of the FCHV HMGs.

I.3 DAG reach study background

In order to know the effectiveness and impact of the PF aspect of the *Suaahara* program, an evaluation including a baseline survey before the implementation of the PF intervention activities and an endline survey after the intervention activities, was necessary. To set up a benchmark for progress assessment, a baseline survey was carried out in four districts (Bhojpur, Sindhupalchowk, Rupandehi and Bajhang) in April-June, 2014. Currently *Suaahara* conducted an endline survey to assess the achievements of the program intervention. The research could also help to improve the program and help provide lessons learned to be taken into account if the PF intervention activities were to be replicated in other areas.

The overall objective of the study is to assess the effect of mobilizing peer of DAG households on improving

- a) maternal knowledge and practices regarding child health and nutrition, specifically optimal breastfeeding and complementary feeding of children under 2 years of age; and
- b) maternal knowledge and practices regarding maternal health and nutrition, specifically during pregnancy and lactation.

The main objective of this survey was to assess changes on maternal knowledge and practice related to maternal and child health and nutrition in both *Suaahara* intervention and non-intervention areas after the implementation of PF intervention.

I.4 Methodology

To assess the effectiveness of *Suaahara*'s DAG reach approach, a quasi-experimental design has been used with the intent of information being collected at two points of time (pre and post intervention) among both *Suaahara* intervention and non-intervention areas. Endline data was collected from mothers of 6-23 months old children using quantitative survey techniques. The same village development committees (VDCs) and wards that were selected in the baseline survey were included for the endline survey also. The study was carried out in close coordination with the *Suaahara* program staff.

a) Study districts

The baseline survey was conducted in 4 out of 41 *Suaahara* program districts, namely Bhojpur, Sindhupalchowk, Rupandehi, and Bajhang. However, only three districts, namely Bhojpur, Rupandehi and Bajhang were included in the endline survey (due to the effect of the recent earthquake, Sindhupalchowk district was dropped). Hence, results discussed in this report are based on the baseline and endline survey results of these three districts only.

b) Study population and sample size

The population for this study constituted the 1000 days mothers (mothers of children between 6 months to 23 months) residing in DAG village development committees (VDCs). The sample size was 1890 mothers of children between 6-23 months old – 945 from intervention and 945 from comparison (control) areas in each round of survey.

c) Selection of VDCs and wards

As the focus of the present study was on the vulnerable groups, samples were drawn from among the DAG² VDCs. For this, four VDCs

having DAG scores (3A, 3B or 4) were selected from each of the intervention and control areas. The intervention VDCs were selected by marking the DAG VDCs on the district map. Four clusters were then determined to ensure VDCs were selected from all regions, then required number of VDCs were selected using probability proportional to size (PPS) from each of four clusters. For this, all the DAG VDCs were listed separately together with the number of households in each VDC. The sampling interval (k) was obtained by dividing the total number of households in the district by required sample size of 4. A random number (x) between one and the sampling interval (k) was chosen as the starting point, and the sampling interval (k) was then added cumulatively and repeatedly ($x+k$)th, ($x+2k$)th until 4 VDCs have been selected. Comparison VDCs were similar to intervention VDCs in terms of DAG category and geographic distance from intervention VDCs. As much as possible, comparisons VDCs from the same cluster as the intervention VDCs have been selected.

In order to minimize the diffusion of the program effect from the intervention areas, the comparison VDCs were selected from a list of all the non-program VDCs that were not adjoined to the intervention VDCs belonging to same DAG category. A total of 24 VDCs (12 interventions and 12 comparisons) were included from three study districts. Three wards (clusters) were selected using PPS method from each of the sampled VDCs in Kathmandu using the 2011 Census data. Thus a total of 24 clusters (12 from intervention and 12 from comparison areas) were selected from each district making a total of 72 clusters (36 from intervention and 36 comparison areas).

² The DAG VDCs are defined as those VDCs that fall under category 3A, 3B and 4 by DAG mapping.

d) Selection of households and mothers of children between 6-23 months old

In the beginning, a sketch map of each sampled ward delineating the settlement pattern, forest, rivers, schools, etc. was prepared by the survey team in consultation with the local leaders/informants including FCHVs and schoolteachers of the sampled ward. The purpose of preparing the sketch map was to locate settlements within the ward. In case the ward had more than required number of households, it was further equally divided into segments depending on its size. Upon completion of drawing the segments, the field team chose one segment using a random number table. The starting house (index house) for interview with the household head/member from the selected location was identified using the “spin the bottle” method. Then the field team walked from the center of the identified location in the direction shown by the bottle head and started interview from the nearest household (index house) of that direction following right hand rule until the desired numbers of eligible households were interviewed. From each cluster, 26-27 eligible households were identified and interviewed to collect necessary information.

Only households with at least one child aged 6-23 months in that household could be included in the survey and therefore, a screening questionnaire was used to determine a household’s eligibility for the survey. If a mother had more than one child between 6-23 months of age, the youngest child was chosen for the study purpose. In case of more than one mother with 6-23 months of child present in the sampled household, only one child and his/her mother was selected for interview using lottery method. In case of an eligible mother who lived in the same household but was not present at the time of interviewer's visit, revisits were done up to two times to complete interviews. In the household where

a child between 6-23 months of age was available, but at the time of survey the child's mother was not present, such household was considered ineligible for interview. There were less than 26 eligible households in many of the sampled wards (mostly in the mountain and hills districts) in both round of survey. In such situations, an adjoining ward of the sampled ward was merged to meet the target sample; thus it was necessary to visit 87 additional wards (56 in Bhojpur, 11 in Rupandehi and 20 in Bajhang district). In some areas (specifically in Bhojpur district), the field teams could not find the required number of eligible respondents even after visiting all nine wards of the VDC. In such situations, the field team had to visit adjoining VDCs (3 VDCs in Bhojpur) to meet the target sample. In order to meet the target sample the field teams had to visit 27 VDCs and 159 wards. Through this process, a total of 1890 eligible households (945 from intervention and 945 from comparison areas) were successfully contacted and interviewed from each round to collect necessary information. Table 1.1 shows number of VDCs, clusters, and eligible households included in the both rounds of survey by district.

Table 1.1 Distribution of VDCs, wards, households and eligible households by the study districts

DESCRIPTION	Bhojpur		Rupandehi		Bajhang		All 3 districts	
	Base-line	End-line	Base-line	End-line	Base-line	End-line	Base-line	End-line
Number of VDCs	11	11	8	8	8	8	27	27
Number of clusters	80	80	35	35	44	44	159	159
Number of mothers interviewed	630	630	630	630	630	630	1890	1890

e) Survey instruments

Two survey questionnaires – a screening questionnaire and a main interview questionnaire – were used to collect information from the eligible respondent of the sampled household. The same questionnaire that was used during the baseline survey was used with some modification in the endline. While paper based questionnaire was used to collect information in baseline, electronic device (mobile phone) was used in endline survey. Once a household was selected, the main questionnaire was administered to the mother of the child 6-23 months of age.

Screening questionnaire

This questionnaire was administered to the household head or, when unavailable, to a knowledgeable member of the household in order to identify: a) whether or not a child 6 to 23 months of age resides in the household and b) whether the mother of the child 6 to 23 months of age resides in the household and would be available for interview. Information obtained in the screening questionnaire included name and age of women 18-45 years of age who usually live in the household and name and age of their children aged 6-23 months old.

Survey questionnaire

Once the household was identified as eligible i.e. it included a child 6-23 months of age at the time of survey and his or her mother; the

mother of the young child was interviewed using the main survey questionnaire. In the mother's questionnaire, information was collected on the following:

- Socio-demographic characteristics
- Infant and young child feeding
- Maternal diet
- Child health
- Antenatal care
- Delivery and post-natal care
- Family planning
- Empowerment
- Exposure to peer facilitator (in endline survey only)

1.5 Field organization and data collection

A total of 11 supervisors and 22 interviewers were recruited to collect information for the present survey. Most of the field staff had previous experience in conducting field research. They were given five-day training in Kathmandu. During training, they were exposed to field practice and mock interviews in addition to classroom lectures and discussions. Orientation on mobile use was thoroughly given to the field staff before sending them for field practice. Prior to the use of mobile, they were first comprehensively oriented on the questionnaire. Training topics included: an overview of the *Suaahara* program, introduction to survey objectives, basic nutrition information, as well as field logistics including roles and responsibilities of both supervisors and enumerators and the coordination and reporting mechanisms.

There was one supervisor and two female interviewers in each team. Interviewers were responsible in collecting data from the households while supervisors were responsible for supervising the data collection work including checking the filled-in questionnaires for consistency and maintaining quality data. Four teams were mobilized in each of Bhojpur and Bajhang districts and three teams were mobilized in Rupandehi district for data collection. Each team covered approximately 2-3 VDCs.

I.6 Data processing and analysis

Electronic device (mobile phone) was used for data collection purpose. Information was collected using mobile phone and uploaded to the VaRG's server every day. Data collectors thoroughly reviewed and checked the filled up questionnaire prior to uploading it to the server. The data were then thoroughly reviewed and checked by the computer programmers for consistency, omissions, and errors. The cleaned data set was then transferred to SPSS and a SPSS system file was prepared for output generation

Data has been analyzed in SPSS using simple frequency tables and cross tabulations. Results obtained from the intervention and comparison areas have been comparatively analyzed across two survey points. Relationships between/among the variables have also been done using appropriate statistical tools such as t-test and Chi square test. Key information related to the objectives of the study has been presented in tables and graphs. The impact of program intervention on selected maternal and child health and nutrition indicators was assessed by calculating difference in difference (DID) estimates using difference in difference model.

Respondents and Households Characteristics

A total of 1890 mothers of children between 6 to 23 months old (945 from each of the intervention and comparison areas) were included in both the baseline and endline surveys. This chapter presents comparative findings on socio-demographic and economic characteristics of the respondents including access to drinking water and sanitation facility between intervention and comparison areas across two survey points (i.e. baseline and endline).

2.1 Socio-demographic characteristics

Table 2.1 shows the age distribution of responding women in both the intervention and comparison areas across two survey points. Majority (>87%) of the women in both areas with slightly a higher percentage in intervention area were between 18-34 years of age with distinctly less representation of women from age 35-45 years. The proportions of women between 25-34 years were slightly higher at endline than at baseline. However, the median age of the women in both areas remained the same (25 years) in both surveys indicating no significant difference in age composition of women across two survey points. Over half (51%-56%) of the respondents in both areas with slightly a higher percentage in intervention area had attended school. In general, the educational level of the women in both areas increased significantly ($p < .01$) (by 7

percentage points) at endline. However, just over one-tenth (11%-14%) of the women had completed SLC or above. The age structure of the children revealed that slightly over one-third of the children in both areas were between 6-11 months of age, 30% were between 12-17 months and about 32% were between 18-23 months old. No marked difference on age composition of the children was observed across the two study areas and between two survey points. Overall, more than one-third (>36%) of the women in both surveys were Brahmin or Chhetri followed by Janajati (25%) and Dalit (17%). Slightly a higher proportion of the Dalit women had participated at endline in both the intervention and comparison areas.

Table 2.1 Socio-demographic characteristics of respondents

Description	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
District						
Bhojpur	33.3	33.3	33.3	33.3	33.3	33.3
Rupandehi	33.3	33.3	33.3	33.3	33.3	33.3
Bajhang	33.3	33.3	33.3	33.3	33.3	33.3
Age of respondents (in years)						
18-24	45.3	44.3	42.8	46.8	44.0	45.6
25-34	42.0	45.9	46.1	47.3	44.1	46.6
35-45	12.7	9.7	11.1	5.9	11.9	7.8
Level of education						
No schooling	50.4	43.7	56.0	48.7	53.2	46.2
Some primary	17.7	18.9	21.2	19.8	19.4	19.4
Some secondary	19.8	23.1	14.1	20.1	16.9	21.6
SLC or above	12.2	14.3	8.8	11.4	10.5	12.9
Age of child (in month)						
6-11 months	33.5	38.6	35.4	36.0	34.5	37.3
12-17 months	32.0	30.3	32.3	30.8	32.1	30.5
18-23 months	34.5	31.1	32.3	33.2	33.4	32.2
Caste/ethnicity						
Brahmin/Chhetri	36.4	34.3	38.7	38.0	37.6	36.1
Dalit	16.9	18.2	15.6	17.7	16.2	17.9
Janajati	28.0	27.4	23.0	23.0	25.5	25.2
Other ±	18.6	20.1	22.8	21.4	20.7	20.7

± Other includes: Muslim and Other Madheshi Terai

2.2 Housing condition and household possession

a) Housing condition

Information regarding housing condition of the responding women was collected during the survey. The field staff observed the flooring and roofing materials, and materials used in the walls during survey. Earth, mud or dung was the main materials used on the floor in nearly nine-tenth of the houses followed by cement which accounted for nearly 10% in both intervention and comparison areas (Table 2.2). Majority of the households have thatched (29%-31%), cement (24%-27%), stone (24%-25%) and metal (15%-19%) roofs. The most common materials used for walling was stone in both areas (63% in intervention and 56% in comparison area) followed by bricks (17% in intervention and 16% in comparison area) and cement or cement block (13% in intervention and 15% in comparison area). No marked improvement in housing characteristics of the respondents was observed between two survey points in both the intervention and comparison areas.

Table 2.2 Housing characteristics- floor, roof and wall materials

Housing characteristics	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Flooring						
Earth/mud/dung	89.6	88.9	90.8	87.6	90.2	88.3
Wood planks	-	0.2	-	-	-	0.1
Ceramic tiles, marble chips	0.1	-	0.1	-	0.1	-
Cement	10.3	10.9	9.1	12.4	9.7	11.6
Roofing						
Thatch	33.9	29.4	38.7	31.1	36.3	30.3
Metal	18.1	19.4	12.2	14.6	15.1	17.0
Tiles/Khapada	4.3	2.2	4.0	3.6	4.2	2.9
Cement	19.9	23.9	21.1	27.0	20.5	25.4
Stone	23.8	25.1	24.0	23.7	23.9	24.4
Walls						
Bamboo with mud	7.1	7.1	16.9	11.6	12.0	9.4
Bamboo with cement	0.1	0.2	0.3	-	0.2	0.1
Adobe	1.9	0.3	1.7	-	1.8	0.2
Unfinished wood	-	0.1	1.1	1.8	0.5	1.0
Cement	1.8	11.6	3.1	14.9	2.4	13.3
Bricks	18.8	16.5	16.1	15.7	17.5	16.1
Cement blocks	5.5	1.3	4.2	-	4.9	0.6
Wood planks	0.2	-	0.5	0.1	0.4	0.1
No walls	0.4	0.1	0.3	-	0.4	0.1
Stone	63.8	62.8	55.7	55.9	59.7	59.3
Corrugated iron sheet	0.3	-	0.1	-	0.2	-

b) Possession of household items

Information regarding electricity and telephone connection including mobile phone at home, possession of solar, bicycle, motorcycle, television, radio and refrigerator was collected from the respondents in both points of survey. These are considered as the useful indicators of the socio-economic status of the households. Approximately 9-in-10 women with slightly a higher percentage in intervention area reported having telephone/mobile phone followed by 37% in intervention and 57% in comparison area reported having electricity at their homes. Over half of the women in intervention and nearly two-fifths in comparison area had solar system of energy in their homes. The proportion of households possessing a radio set was much higher (42%) in intervention than in comparison (33%) area. Those having a bicycle and television in their houses constituted approximately 30% and 25% respectively in both areas. The overall results show that percentage of households possessing these items was slightly higher at endline than at baseline in both the intervention and comparison areas (Table 2.3).

Table 2.3 Possession of various items in their households

Household items (% yes only)	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Electricity	34.5	36.9	53.0	56.9	43.8	46.9
Solar	48.8	53.7	36.2	38.1	42.5	45.9
Bicycle	29.5	31.5	27.9	29.2	28.7	30.4
Motorcycle	8.5	8.8	6.1	8.4	7.3	8.6
Telephone/mobile phone	83.1	90.9	81.1	88.4	82.1	89.6
Television	21.8	25.6	23.8	24.6	22.8	25.1
Radio	33.0	42.4	29.0	33.1	31.0	37.8
Refrigerator	2.8	2.2	2.0	2.8	2.4	2.5

2.3 Water and sanitation

a) Source of drinking water and treatment

The source of drinking water for the majority (37%-39%) of the households was public/neighbors' tap in both the intervention and comparison areas. The large majority (86%) of the households in both areas had access to improved water i.e. piped, well or tube well source. However, this figure remained almost unchanged between baseline and endline in both areas.

Table 2.4 Source of drinking water and water treatment

Source of water	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Improved source	85.4	86.4	84.4	86.2	85.0	86.5
Piped into house/yard/plot	10.5	15.0	11.7	16.2	11.1	15.6
Public / neighbor's tap	42.2	38.7	40.1	37.0	41.2	37.9
Well in house/yard/plot	0.1	0.1	0.4	-	0.3	0.1
Public/neighbor's well	0.4	0.3	-	0.2	0.2	0.3
Tube well in yard/plot	27.1	26.1	26.9	26.8	27.0	26.5
Public/neighbor's tube well	5.1	6.2	5.3	6.0	5.2	6.1
Non-improved source	14.6	13.5	15.6	13.7	15.1	13.5
Spring/kuwa	13.9	12.0	12.4	9.1	13.1	10.5
River/stream/pond/lake	0.6	0.5	1.4	0.5	1.0	0.5
Stone tap/dhara	0.1	1.0	1.8	4.1	1.0	2.5

Only a small proportion (10% in intervention and 5% in comparison area) of the respondents reported treating water for drinking. Boiling, straining through cloth, sedimentation and filtering were the commonly adopted methods for treating water (Table 2.5). Although the proportion of households who treated water for drinking increased significantly ($p < .01$) at endline in both areas, the level of increase was much higher in intervention (by 7 percentage points) than in comparison (by 3 percentage points) area, indicating the contribution of program intervention in informing community regarding the importance of treating water for drinking.

Table 2.5 Treatment of drinking water

Treatment of drinking water	Intervention		Comparison		All	
	BL	EL	BL	EL	BL	EL
Any treatment of water	3.0	10.3	2.2	4.7	2.6	7.5
Total (n)	945	945	945	945	1890	1890
Reported treatment method						
Letting water settle/ sedimentation	17.9	10.3	9.5	11.4	14.3	10.6
Straining through cloth	17.9	12.4	28.6	34.1	22.4	19.1
Boiling	57.1	76.3	66.7	59.1	61.2	70.9
Adding bleach/chlorine	-	1.0	-	2.3	-	1.4
Using water filter (ceramic/sand)	25.0	3.1	9.5	9.1	18.4	5.0
Solar disinfection	3.6	-	4.8	4.5	4.1	1.4
Total (n)	28	97	21	44	49	141

b) Toilet facility

Over 85% of the women in intervention and 77% in comparison areas reported having toilet facilities in their houses (Table 2.6). A majority with toilet facility either had pan toilets (74% in intervention and 71% in comparison area) or pit toilets (11% in intervention and 7% in comparison area). Those having toilet facility had increased significantly ($p < .01$) at endline in both areas, with a higher level of increase in intervention (by 23 percentage points) than in comparison (by 20 percentage points) area.

Table 2.6 Type of toilet and disposal of feces

Type of toilet and disposal of feces	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Type of household toilet facilities						
Pan toilet	43.2	74.4	44.1	70.8	43.7	72.6
Pit toilet	19.4	11.0	13.2	6.5	16.3	8.7
No facility / bush / field	37.5	14.6	42.6	22.8	40.1	18.7
Disposal of feces						
Drop into toilet	36.7	52.7	34.3	51.6	35.5	52.2
Dispose in open area	56.7	41.6	59.4	41.4	58.0	41.5
Wash away in drainage system	0.2	0.2	0.1	0.4	0.2	0.3
Make compost manure	0.8	2.5	-	0.6	0.4	1.6
Dispose somewhere in house yard	2.9	1.1	1.8	1.5	2.3	1.3
Bury	1.9	1.8	4.2	4.3	3.1	3.1
Do nothing	0.7	0.1	0.2	0.1	0.5	0.1

Respondents were also asked about places where they usually dispose their 6-23 months old children's feces. Over half (>51%) of the women in both areas reported dropping children's feces into the toilet followed by slightly over two-fifths (41%) disposed in an open area. Those dropping children's feces into safer place (i.e. into toilets) increased significantly ($p < .01$) in both areas (by 16-17 percentage points). The above findings indicated that still a sizeable number of households do not dispose children's feces in the safer places. Thus, the above findings call for the need of making the people aware about the importance of disposing children's feces properly.

IYCF Knowledge and Practices

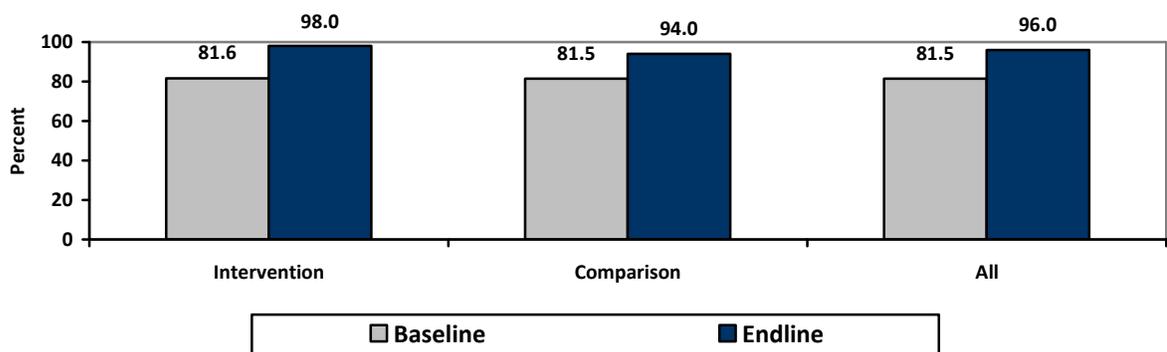
Series of questions related to knowledge, attitudes and practices on food consumption among the responding women and their children aged 5-23 months of age were asked in both the baseline and endline surveys. Information related to childhood diarrhea including their treatment was collected from all women included in both surveys. The survey results are discussed in this chapter.

3.1 Knowledge about breast feeding and complementary feeding

Knowledge about duration of feeding breast milk only to a baby

The Government of Nepal has stated in its policy that a woman should breast feed her child exclusively until they are six months of age. Hence, the opinion of respondents regarding the appropriate duration of breastfeeding (breast milk only) to the baby was sought in both the baseline and endline surveys. Approximately 98% of the women in intervention and 94% in comparison areas in endline correctly mentioned that a child should be given “breast milk only” for up to six months. The corresponding value in the baseline was 82% indicating a significant ($p < .01$) improvement in women’s knowledge in both areas. The level of increase was appreciably high in intervention than in comparison area (by 16 vs. 13 percentage points).

Figure 3.1 Percentage of respondents by correct knowledge about duration of feeding breast milk only to a baby



n= Intervention area (945 in each round); Comparison area (945 in each round)

Complementary feeding knowledge

Opinion of women regarding the kind of foods that are best to feed the children between 6-23 months of age in addition to breast milk was also sought in both points of survey. Majority of the women (90%-93%) considered grain (porridge which is enriched or not enriched with other foods) as the best food for children of this age group followed by legumes (90%-94%) and milk or yogurt (81%-83%) respectively. Approximately 70% of the women in intervention and about 60% in comparison areas considered eggs, meat items and yellowish and green vegetables and fruits to be

best for children aged 6-23 months (Table 3.1). More women in intervention than in comparison area considered all types of foods to be best for children except for grain which was considered to be best by a higher proportion of women in comparison area. Overall, there were notable improvements on the level of knowledge of women of intervention area regarding the foods that are best for the children between 6-23 months than those of comparison area indicating the contribution of program intervention in imparting knowledge about complementary feeding to the children.

Table 3.1 Opinion regarding the foods that are best to feed the children aged 6-23 months in addition to breast milk

Complementary feeding knowledge	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Milk or yogurt	64.8	83.2	67.7	80.6	66.2	81.9
Grain (porridge that is enriched or not enriched with other foods)	81.5	89.7	71.1	92.6	76.3	91.2
Yellow, orange and green vegetables and fruits	46.6	68.1	49.0	58.1	47.8	63.1
Other fruits and vegetables	55.0	63.6	51.6	51.1	53.3	57.4
Eggs	46.1	71.1	49.4	58.6	47.8	64.9
Chicken or meat including liver, fish	54.6	70.6	62.0	60.2	58.3	65.4
Legumes	59.7	93.5	58.3	89.6	59.0	91.6

3.2 IYCF practices

This section presents findings related to infant and young child feeding practices in the household including breastfeeding, complementary feeding with solid and liquids, feeding diversity of foods, and frequency of feeding.

a) Breastfeeding

Almost all women in both the intervention and comparison areas in both round of surveys affirmed to have given breast milk to their youngest child. It is recommended that a newborn should be breastfed immediately after birth. Women were also asked about the time when they first started feeding breast milk to their youngest child. Nearly three-quarters of women (74%) in intervention compared to only 63% in comparison area had given breast milk to their youngest child within one hour of birth. Those who fed breast milk to their youngest child within an hour after birth increased significantly ($p < .01$) in intervention area (by 11 percentage points) but remained relatively unchanged in comparison area. The survey results show that the practice of feeding colostrums to the newborn was quite common in both areas as over 95% of the women reported feeding colostrums to their last child, the value of this indicator remained at similar levels in both areas at endline and at baseline (Table 3.2).

Table 3.2 IYCF indicators -- breastfeeding to the youngest child

Description	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Ever breastfed	100.0	99.8	99.9	99.8	99.9	99.8
Early breastfeeding (within one hour after birth)	63.1	73.8	61.5	63.0	62.3	68.4

Colostrums provided	94.5	95.1	95.7	96.4	95.1	95.8
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b) Consumption of food groups

The average number of food groups consumed (i.e. individual dietary diversity score) by a child aged 6-23 months was slightly higher (3.4 varieties) in intervention compared to the comparison (3.3 varieties) area, and the corresponding values in the baseline was 3.0 and 3.1 respectively. Almost all (97%) the children in both areas had consumed grains followed by about four-fifths (80%-86%) had consumed legumes and nuts and over half (53%) had consumed dairy products within 24 hours prior to the survey. Nearly half of the children of both areas had consumed vitamin A rich fruits and vegetables. However, the consumption of other fruits and vegetables, eggs, and meat, poultry and fish was relatively low (17%-24%) in both areas. There was improvement in proportion of children receiving varieties of food groups across the intervention and comparison areas. Consumption of vitamin A rich fruits and vegetables was notably high in intervention than in comparison (by 18 vs. 5 percentage points). The proportion of children who consumed dairy products increased significantly from 47% to 53% at endline in intervention area while in comparison area it remained almost unchanged (Table 3.3).

The difference in difference (DID) value for eggs consumption is estimated at 2.19, implying that the proportion of children who had consumed eggs was 2.19 percentage points higher in intervention than in comparison area, but the observed differences are not statistically significant ($p=0.67$). Similarly, the DID value for meat, poultry and fish consumption was less than 1% (0.24%) which suggest that the proportion of children who had consumed these items was 0.24 or less than one percentage point higher in intervention than in comparison area over the project duration, where the difference are not significant ($p=0.98$).

Table 3.3 Food groups consumed by children between 6-23 months

Child diets	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Individual dietary diversity score	3.0	3.4	3.1	3.3	3.1	3.4
Mean(SD)	(1.2)	(1.2)	(1.3)	(1.3)	(1.2)	(1.3)
Food groups						
Dairy products	46.9	52.6***	52.7	52.6 ^{ns}	49.8	52.6
Grains	97.0	96.8 ^{ns}	96.2	96.6 ^{ns}	96.6	96.7
Vitamin A rich fruits and vegetables	31.0	49.5***	39.6	44.6**	35.3	47.0
Other fruits and vegetables	14.9	18.5**	14.3	24.3***	14.6	21.4
Eggs	11.6	19.3***	11.7	17.1***	11.7	18.2
Meat, poultry and fish	18.8	20.8 ^{ns}	17.4	19.2 ^{ns}	18.1	20.0
Legumes and nuts	83.2	86.2**	76.3	79.6**	79.7	82.9

p-values *** <0.01; ** <0.05; * <0.1; ns=not significant

c) Minimum meal frequency and minimum dietary diversity

Minimum meal frequency (MMF)

It is recommended that breastfed children between 6-8 months of age should be given a minimum of two meals (solid, semi-solid or soft foods) a day, three meals for breastfed children aged 9-23 months, and four meals for non-breastfed children aged 6-23 months. In order to examine the food consumption practices, all women were asked about the number of times their youngest child were fed solid, semi-solid or soft foods other than liquids in the last 24 hours preceding the survey. Table

3.4 shows data on the distribution of children aged 6-23 months who received recommended minimum meal frequency in the last 24 hours prior to the survey. Slightly a higher (85%) proportion of the children in intervention than those of comparison area (82%) had received minimum meal frequency in the last 24 hours. However, no notable improvement on minimum meal frequency was observed at endline in intervention while in comparison area it increased significantly ($p < .01$) from baseline. The difference in difference (DID) estimate value is -3.06 indicating that the proportion of children who received minimum meal frequency is 3.06 percentage points lower in intervention area than in comparison area. However, the observed differences are not statistically significant ($p = 0.73$).

Table 3.4 IYCF Indicators – minimum meal frequency and minimum dietary diversity

Description	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Minimum meal frequency ³	82.6	84.7	77.4	82.4	80.0	83.5
Minimum dietary diversity (≥4 food groups)	32.1	46.5	37.6	45.0	34.8	45.7

Minimum dietary diversity (MDA)

It is recommended that a child between 6-23 months old should be fed at least four out of seven food groups⁴ during 24 hours. Respondents were also asked about types of food groups their youngest child were fed within 24 hours preceding the survey. The survey results show that slightly a higher proportion (47%) of the children in intervention than those of comparison (45%) area was fed the recommended variety of food groups (Table 3.4). The proportion of children who were fed four or more variety of foods increased significantly ($p < .01$) at endline in both areas but the level of increase was notably high in intervention (by 15 percentage points) than in comparison (by 7 percentage points) area, indicating the visible impact of the program intervention. The difference in difference (DID) estimate for this indicator is 6.93, indicating that proportion of children who received minimum dietary diversity is 6.93 percentage points higher in intervention area compared to the comparison area. However, the observed differences are not statistically significant ($p = 0.44$).

3.3 Hand washing with soap

Hand washing with soap is considered as a simple and highly effective method for avoiding contamination of food and prevents food-borne diseases. The study attempted to assess the knowledge and behavior of responding women regarding hand washing with soap. In order to assess their knowledge, all women were asked about the critical times a person should wash their hands with soap. The survey results are presented in Table 3.5. Almost all (98%) the women in both areas were of the opinion that a person should wash hands with soap after defecating followed by about 90% (95% in intervention and 89% in comparison areas) who mentioned washing hands with soap after cleaning the child. Approximately half (49%-55%) of the women, with slightly a higher percentage in intervention, felt the need for washing hands with soap before eating. However, relatively a smaller proportion of the women were aware about the need for washing hands with

³ 2 times for breastfed infants aged 6-8 months; 3 times for breastfed children aged 9-23 months; 4 times for non-breastfed children aged 6-23 months.

⁴ Seven food groups include: dairy products; grains, roots & tubers; vitamin A-rich fruits & vegetables; other fruits & vegetables; eggs; flesh foods (meat, poultry, fish, organ meats); and legumes & nuts.

soap before feeding child (39%-56%) and before preparing and handling food (22%-35%). Overall, the knowledge regarding washing hands with soap in all five critical occasions increased significantly ($p<.01$) in both areas (5% to 19% in intervention and 5% to 9% in comparison areas) with a notable improvement in intervention (by 14 percentage points) than in comparison (by 4 percentage points) area indicating the visible contribution of the program in imparting knowledge about the importance of washing hands with soap to the women.

Table 3.5 Hand washing (with soap) knowledge on critical times

Hand washing knowledge	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
After cleaning child	84.1	95.4	82.0	88.6	83.1	92.0
After defecating	92.1	97.9	92.8	98.2	92.4	98.0
Before feeding child	32.9	56.4	30.4	39.2	31.6	47.8
Before eating	43.6	55.4	44.3	48.9	44.0	52.2
Before preparing and handling food	23.3	35.4	18.8	21.8	21.1	28.6
All five critical times	4.6	18.6	4.8	8.6	4.7	13.6

In order to assess their behavior, women were also asked about times when they usually wash their hands with soap. Over 95% of the women in both intervention and comparison areas reported that they usually wash their hands with soap after defecating (Table 3.6). A higher proportion of women in intervention (86%) than in comparison area (80%) reported washing their hands with soap after cleaning children and nearly two-fifths in both areas do so before eating. However, the proportion of women who wash their hands before feeding child and before preparing and handling food was relatively low in both areas. Compared to the baseline, there was notable improvement in hand washing practices among women of the intervention area on five critical occasions than those of comparison area. Although the proportion of women who washed hands in all five critical times increased significantly ($p<.01$) at endline in intervention area, the level remained low (3% at BL and 7% at EL). The above findings indicate the need for educating women about the importance of washing hands regularly in five critical times to avoid exposure to contamination of foods and diseases.

Table 3.6 Hand washing practices at five critical times

Hand washing practices	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
After cleaning child	80.7	86.3	75.3	79.9	78.0	83.1
After defecation	90.2	95.7	88.7	96.8	89.4	96.2
Before feeding child	24.9	37.5	28.4	23.1	26.6	30.3
Before eating	34.9	39.7	33.5	37.2	34.2	38.5
Before preparing and handling food	18.8	20.0	16.0	12.3	17.4	16.1
All five critical times	2.6	6.8	4.4	2.0	3.5	4.4

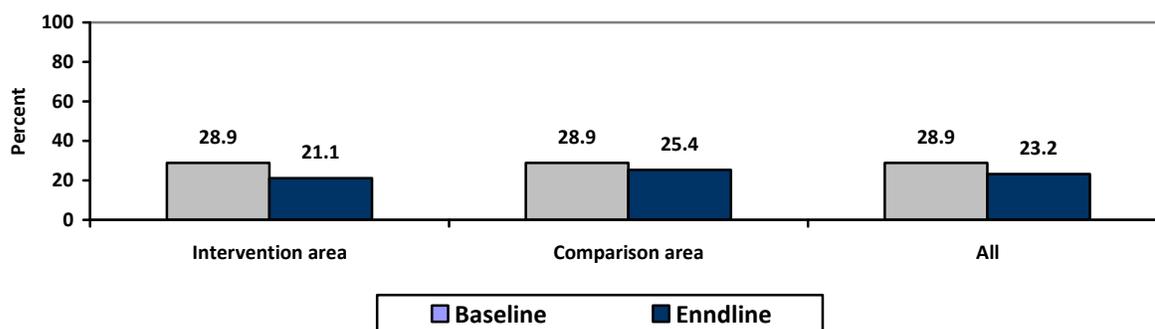
3.4 Childhood diarrhea and its treatment

a) Prevalence of diarrhea

In order to examine the diarrheal prevalence and its treatment practices, all women in both surveys were asked if their youngest child had diarrhea in the last two weeks preceding the survey. Data presented in Figure 3.2 shows that a higher proportion (25%) of the children in comparison than in

intervention (21%) area were suffering from diarrhea in the last two weeks preceding the survey. The proportion of children who suffered from diarrhea declined significantly ($p < .01$ in intervention and $p < .05$ in comparison) in both areas at endline, with a great extent of decline in intervention (by 8 percentage points) than in comparison (by 4 percentage points) area.

Figure 3.2 Prevalence of diarrhea among children aged 6-23 months in the last 2 weeks preceding the survey



n= Intervention area (945 in each round); Comparison area (945 in each round)

b) Amount of liquid and solid foods given during diarrhea

Women whose youngest child had diarrhea in the last two weeks prior to the survey were also asked whether their child was given same amount of liquid and solid food items to consume as before the diarrhea, or more or less amount. Slightly a higher proportion (87%) of the women in intervention than in comparison (85%) area had given same or more than usual amount of food to their child during last diarrheal episode. Those giving same or more than usual amount of food during diarrhea increased significantly ($p < .01$) at endline in both areas with a higher level of increase in comparison than in intervention area (by 35 vs. 13 percentage points). With regard to the liquid, only a small proportion of the women in both the intervention (14%) and comparison (8%) areas had given more than usual amount of liquid to their child during diarrhea. The above information indicates the need for informing women about the importance of providing adequate liquid and solid food items to the children during diarrhea.

Table 3.7 Amount of liquid and solid foods given to the child during last diarrheal episode

Description	Intervention		Comparison		All	
	BL (N=273)	EL (N=199)	BL (N=273)	EL (N=240)	BL (N=546)	EL (N=439)
Amount of food given during diarrhea						
Much less than usual	7.3	2.5	11.0	2.1	9.2	2.3
Somewhat less than usual	19.0	10.6	37.4	12.5	28.2	11.6
Same amount	37.4	30.7	32.2	42.1	34.8	36.9
More than usual	36.3	56.3	17.9	43.3	27.1	49.2
Did not offer	-	-	1.5	-	0.7	-
Amount of drink given during diarrhea						
Much less than usual	26.0	7.0	21.6	11.7	23.8	9.6
Somewhat less than usual	35.2	30.2	46.2	27.1	40.7	28.5
Same amount	26.4	48.7	20.5	50.4	23.4	49.7

Table 3.7 Amount of liquid and solid foods given to the child during last diarrheal episode

Description	Intervention		Comparison		All	
	BL (N=273)	EL (N=199)	BL (N=273)	EL (N=240)	BL (N=546)	EL (N=439)
More than usual	9.2	13.6	6.2	7.5	7.7	10.3
Did not offer	1.5	-	2.6	0.4	2.0	0.2
Have not introduced any food	1.8	0.5	2.9	2.9	2.4	1.8

Respondents were further questioned if they had given ORS (such as *Jeevan Jal*, *Nawa Jeevan* or *Orestal*) and homemade fluid (such as lentil or beans soup, *Nun-Chini-Pani*) to their child during last diarrheal episode. Over 58% of the children in both the intervention and comparison areas had received ORS. Similarly, about half of the children in intervention and over two-fifths in comparison areas had also received homemade fluid during last diarrheal episode. However, the proportion of children receiving these ORS and homemade fluids remained almost at the similar level in both surveys. However, those receiving zinc tablets increased significantly ($p < .01$) from 22% to 33% in intervention and 15% to 26% in comparison area at endline. The level of increase was almost the same (by 11 percentage points) in both areas between two surveys points (Table 3.8). More than half (55%) of the children in intervention compared to about 40% in comparison area had received recommended doses of zinc tablets (i.e. for 10 days). There was significant increase between the baseline and endline in this indicator too in both areas ($p < .01$ in intervention and $p < .1$ in comparison areas) with a large gain in intervention than in comparison area (by 26 vs. 13 percentage points). The overall findings thus revealed that the practice of giving either ORS or homemade fluid and zinc tablets to the children during diarrhea was less common in both areas indicating the need for making aware the community about the importance of ORS, homemade fluid and zinc tablets for treatment of childhood diarrhea.

Table 3.8 Respondents who provided ORS, homemade fluid and zinc tablets to their youngest child during last diarrheal episode

Description	Intervention		Comparison		All	
	BL (N=273)	EL (N=199)	BL (N=273)	EL (N=240)	BL (N=546)	EL (N=439)
ORS given during diarrhea	60.4	58.8	59.3	58.3	59.9	58.5
Homemade fluid given during diarrhea	47.6	50.3	50.2	42.5	48.9	46.0
Zinc tablets given during diarrhea	22.0	33.2	15.0	26.3	18.5	29.4
Given zinc for 10 days*	28.3 (60)	54.5 (66)	26.8 (41)	39.7 (63)	27.7 (101)	47.3 (129)

*Figures in parentheses indicate total sample.

Chapter 4

Maternal Health and Nutrition Knowledge and Practices

Information regarding food consumption practices among women themselves was collected in both points of survey. Similarly, information on knowledge of respondents regarding nutrition, antenatal care and postnatal care was also sought in the survey. This chapter presents comparative findings on these aspects between two groups of study population with the baseline in order to assess changes on the above aspects between the two survey periods.

4.1 Maternal nutrition

Maternal dietary diversity

In order to examine the food consumption practices of 1000 days mothers, all women were asked about types of food items they consumed in the last 24 hours prior to the survey. The survey results show that on an average, each woman had consumed 3.7 varieties of food groups in intervention and 3.6 varieties in comparison area during 24 hours preceding the survey. There was slight improvement in this indicator between baseline and endline survey, the level of change was slightly higher in intervention than in comparison area (Table 4.1). All the women of both areas had consumed grains in the past 24 hours preceding the survey followed by about 90% had consumed legumes and nuts. Over half of the respondents with slightly a higher percentage in comparison area had consumed dark green leafy vegetables and another two-fifths (37%-40%) had consumed dairy products. Those consuming vitamin A rich fruits and vegetables, eggs, meat, poultry and fish items were quite low in both the intervention and comparison areas. However, consumptions of Vitamin A rich fruits and vegetables and eggs by the responding women increased significantly ($p < .01$) in intervention area at endline. Overall, the proportion of women who consumed varieties of food groups had increased markedly in intervention area than that of comparison area.

Table 4.1 Maternal diets – individual dietary diversity scores and food groups

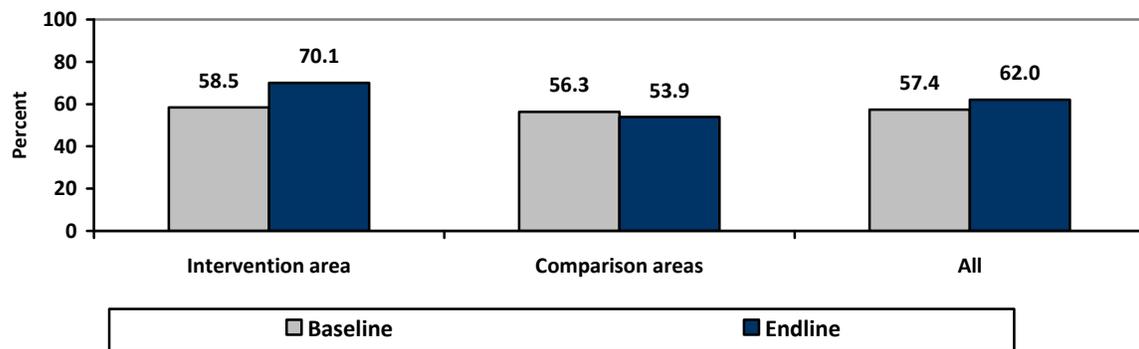
Maternal diets	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Individual dietary diversity score Mean (SD)	3.3 (1.1)	3.7 (1.2)	3.5 (1.3)	3.6 (1.2)	3.4 (1.2)	3.7 (1.1)
Food groups						
Dairy products	38.2	40.4 ^{ns}	41.1	37.0 ^{**}	39.6	38.7
Grains	99.9	100.0 ^{***}	99.8	100.0 ^{***}	99.8	100.0
Vitamin A rich fruits and vegetables	9.2	20.5 ^{***}	10.5	17.0 ^{***}	9.8	18.8
Dark green leafy vegetables	40.0	51.3 ^{***}	55.3	52.8 ^{ns}	47.7	52.1
Other fruits and vegetables	13.5	25.8 ^{***}	16.8	28.6 ^{***}	15.2	27.2
Eggs	10.1	13.9 ^{***}	11.7	11.4 ^{ns}	10.9	12.6
Meat, poultry and fish	23.6	22.8 ^{ns}	20.6	20.2 ^{ns}	22.1	21.5
Fish	3.8	4.2 ^{ns}	5.5	3.5 ^{**}	4.7	3.9
Legumes and nuts	89.4	92.1 ^{**}	86.1	89.2 ^{**}	87.8	90.6

p-values *** <0.01; ** <0.05; * <0.1; ns=not significant

Consumption of extra meals during pregnancy

All women were asked if they received extra meal during their last pregnancy. The proportion of women who received extra meals (≥ 1 times) during last pregnancy were much higher (70%) in intervention than in comparison (54%) area. Those receiving extra meals increased significantly ($p < .01$) at endline in intervention while in comparison area it declined slightly from baseline (Figure 4.1).

Figure 4.1 Percentage of women receiving extra meals (≥ 1 times) during last pregnancy

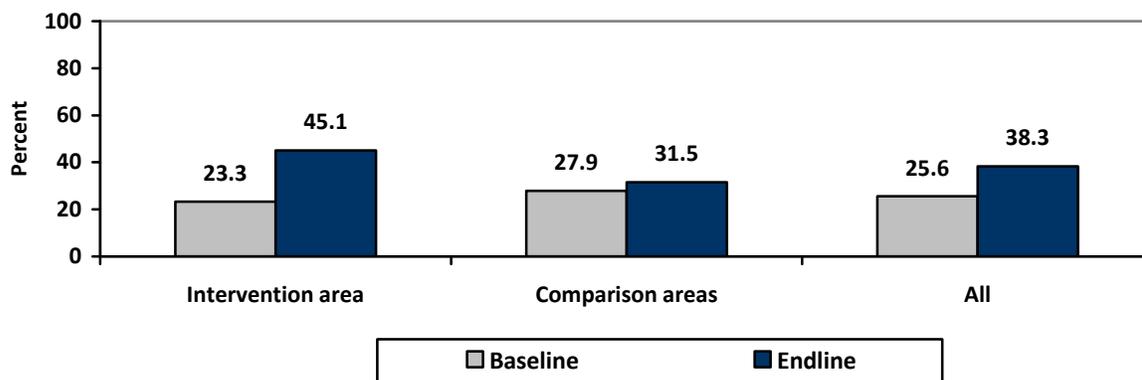


n= Intervention area (945 in each round); Comparison area (945 in each round)

Consumption of extra meal while breastfeeding

Women were also asked about the number of extra meals they actually consumed in a day when they were feeding breast milk to their youngest child. A woman should consume at least two extra meals a day when she is breastfeeding her child. Over 45% of the women in intervention as against only 32% in comparison area affirmed to have consumed two or more any extra meal in a day during their lactational period (Figure 4.3). Those who consumed recommended number of extra meals increased notably in intervention (by 22 percentage points) than in comparison area (by 4 percentage points). However, still a sizeable number of lactating mothers in both areas had not consumed recommended number of extra meals indicating the need for encouraging these women to consume extra meals during lactational period.

Figure 4.2 Percentage of women receiving extra meals (≥ 2 times) while breastfeeding



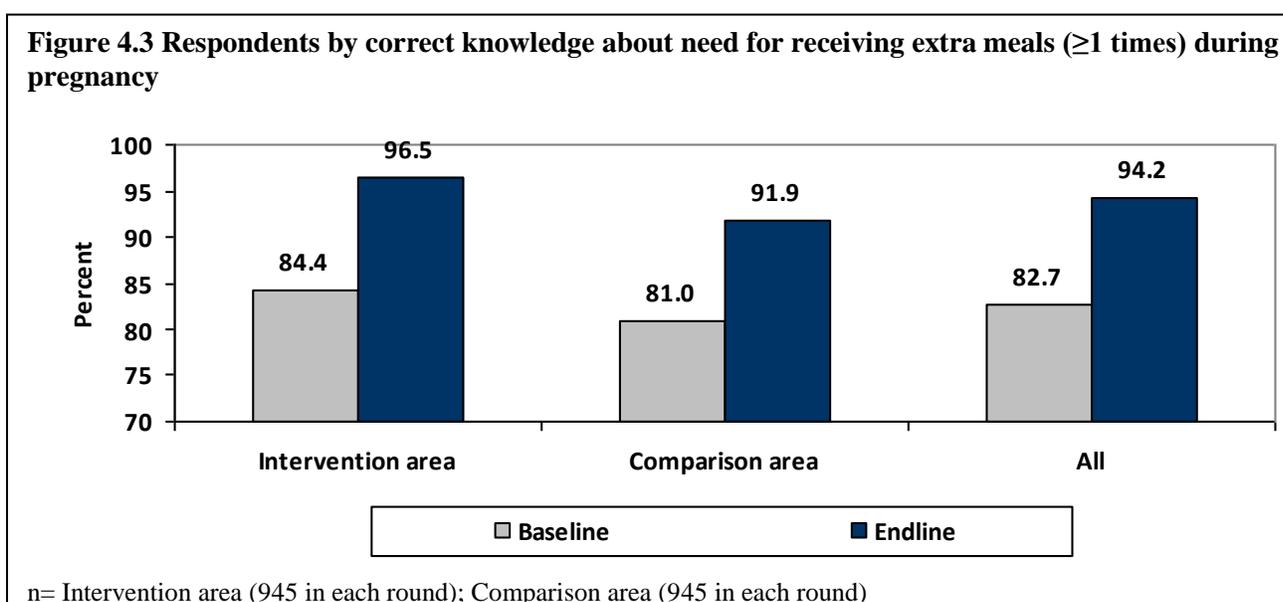
n= Intervention area (945 in each round); Comparison area (945 in each round)

4.2 Maternal health knowledge (ANC and PNC)

a) Knowledge about need for receiving extra meals and iron tablets during pregnancy

Need for receiving extra meals during pregnancy

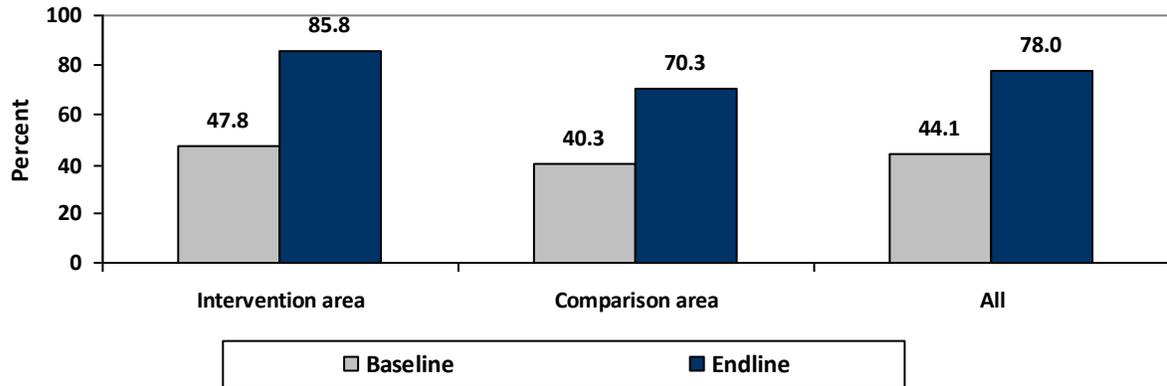
It is recommended that a woman should have at least one extra meal during her pregnancy. Therefore, in order to examine their knowledge about the required food intake, all responding women were asked about the number of extra meals a woman should consume during her pregnancy. The proportion of women having correct knowledge about the need for receiving extra meals during pregnancy was higher in intervention (97%) than in comparison (92%) area. Those having correct knowledge about this indicator increased significantly ($p < .01$) in both areas with slightly more gain in intervention (by 12 percentage points) than in comparison (by 11 percentage points) area (Figure 4.3).



Need for iron/folic acid during pregnancy

Respondents were also asked about the number of days a woman should take iron/folic tablets during pregnancy. Approximately 86% of the women in intervention compared to 70% in comparison area correctly mentioned that a woman should take iron/folic tablets for 180 days. The proportion of women having correct knowledge about this indicator increased significantly ($p < .01$) at endline in both areas, however, the level of increase was much higher in intervention (by 38 percentage points) than in comparison (by 30 percentage points) area (Figure 4.4).

Figure 4.4 Respondents by correct knowledge (180 days) about need for taking iron/folic tablets during pregnancy

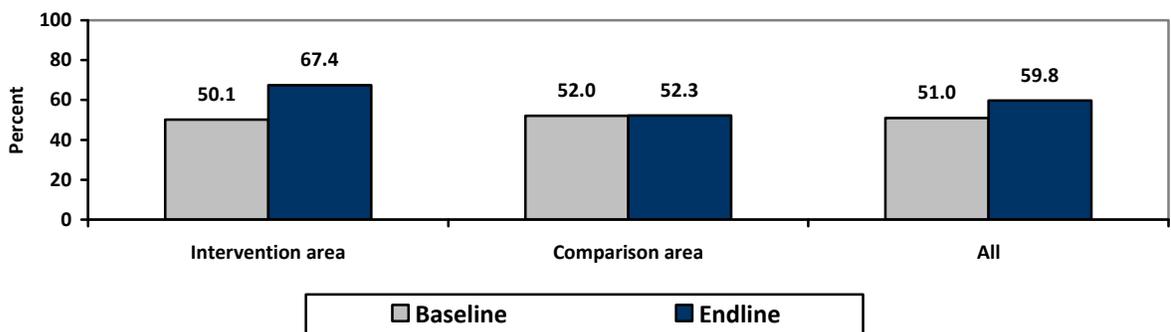


n= Intervention area (945 in each round); Comparison area (945 in each round)

b) Knowledge about need for receiving extra meals during PNC

The question on required number of extra meals for lactating mothers was put to all responding women in both surveys in order to assess their level of knowledge about it. In response, 67% of the women in intervention as opposed to 52% in comparison area correctly mentioned that a lactating mother should take two or more extra meals (Figure 4.5). The percentage of women who correctly mentioned the required number of extra meals during PNC increased significantly ($p < .01$) from 50% at baseline to 67% at endline in intervention area while it remained unchanged in comparison area indicating the contribution of program intervention in imparting knowledge to women of intervention area about it.

Figure 4.5 Respondents by correct knowledge (≥ 2 times) about need for receiving extra meals during PNC



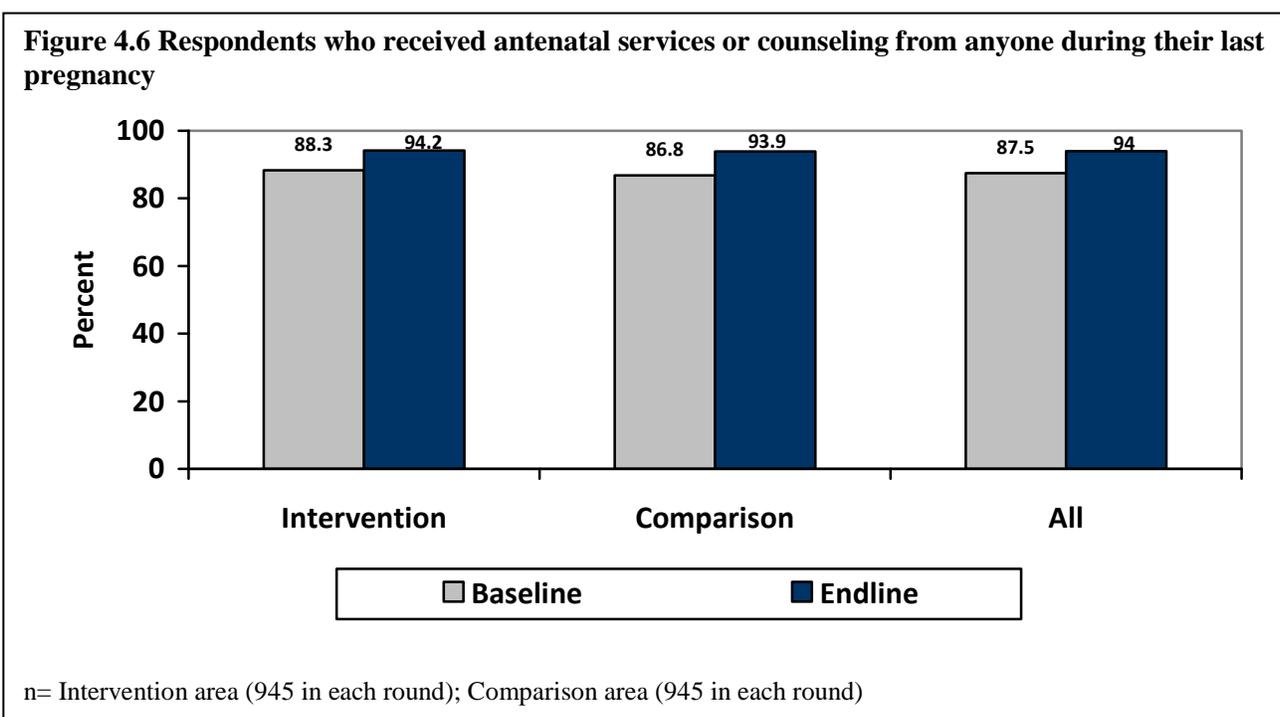
n= Intervention area (945 in each round); Comparison area (945 in each round)

4.3 Maternal health practices (ANC, delivery and PNC)

Information on various aspects of maternal health care such as antenatal, delivery and postnatal care was collected in both the baseline and endline surveys. This section specifically deals with the findings on the use of antenatal, delivery and postnatal services by the women during their last pregnancy.

a) Antenatal care

The great majority (94%) of the women in both the intervention and comparison areas reported to have received antenatal services/counseling from anyone during their last pregnancy, which is significantly ($p < .01$) higher than that of the baseline figures of 88% in intervention and 87% in comparison area (Figure 4.6). The proportion of women who received antenatal services for the first time from the skilled or trained provider increased significantly ($p < .01$) at endline in both areas (by 14 percentage points) (Table not shown).



Respondents were also asked about the timing of the first antenatal checkup including number of times they received antenatal services from the health workers during their last pregnancy. Two-thirds (67%) of the women in intervention and over half (53%) in comparison areas received their antenatal services on the recommended time (i.e. within the fourth month of pregnancy). However, those receiving antenatal services within four month of pregnancy remained unchanged in intervention and even low in comparison area from baseline. More women (69%) in intervention than in comparison (60%) area had received the recommended number of four antenatal checkups during their last pregnancy. These figures are significantly ($p < .01$) higher by 13-14 percentage points than baseline (Table 4.2).

Table 4.2 Respondents by utilization of antenatal services and consumption of iron/folic acid and deworming tablets during their last pregnancy

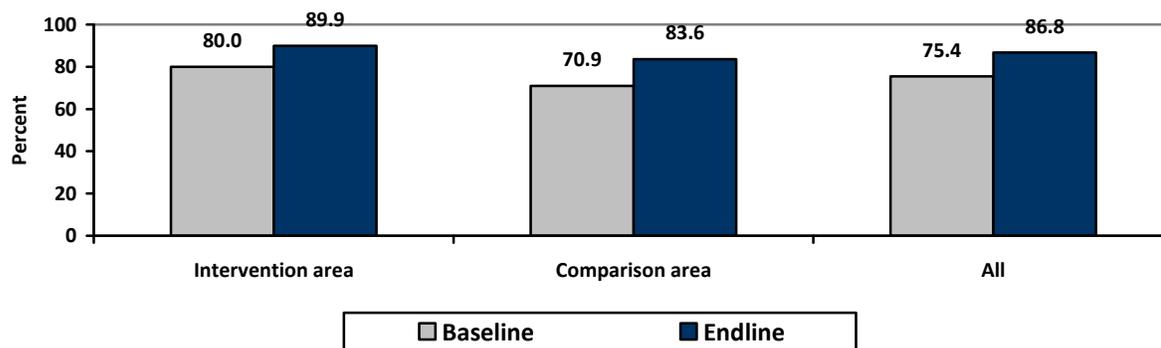
Description	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Pregnancy at first ANC visit						
< 4 months	67.0	67.1	56.5	52.6	61.7	59.4
4 months or more	19.8	21.7	25.6	36.3	22.7	29.4
Not received	13.2	11.3	17.9	11.2	15.6	11.2
Number of ANC visits by mothers						
Less than 4 times	31.7	24.2	35.6	32.6	33.7	28.4
4 times or more	55.0	69.0	46.6	59.8	50.8	64.4
Not received	13.2	6.8	17.9	7.6	15.6	7.2
Use of iron/folic acid during pregnancy						
<180 days	60.5	42.9	68.1	56.5	64.3	49.7
180 days	39.2	57.1	31.7	43.4	35.4	50.3
>180 days	0.3	-	0.1	0.1	0.2	0.1

It is recommended that a pregnant woman should take iron/folic tablets for 180 days in order to make extra blood that a woman need during pregnancy. The survey results revealed that a higher percentage (57%) of women in intervention than in comparison (44%) area had taken iron/folic tablets for recommended days (Table 4.2). Those receiving iron/folic tablets for recommended days increased significantly ($p<.01$) in both areas with a higher level of increase in intervention than in comparison area (by 18 vs. 12 percentage points). The above findings indicate that still a sizeable proportion of the women in both areas do not use iron/folic tablets for recommended days which suggest for informing pregnant women regarding the importance of consuming iron/folic tablets during pregnancy.

Further analysis shows that the difference in difference (DID) value for women receiving four or more ANC visits is estimated at 0.69 indicating that percentage of women making four or more ANC visits was higher by 0.69 percentage point in intervention than those of comparison area, but the differences were not significant ($p=0.95$). With regard to consumption of the iron folic for 180 days or more; the DID value in intervention area was 5.88 percentage points higher than that of comparison area, though differences are not significant ($p=0.62$).

The majority (84%-90%) of the women in both areas with a higher percentage in intervention area had taken medicines for worm during their last pregnancy (Figure 4.7). These figures are significantly higher ($p<.01$) compared to the baseline survey results in both areas, but the level of increase was much higher in comparison (by 13 percentage points) than in intervention (by 10 percentage points) area.

Figure 4.7 Respondents who took any drugs for intestinal worms during last pregnancy



n= Intervention area (945 in each round); Comparison area (945 in each round)

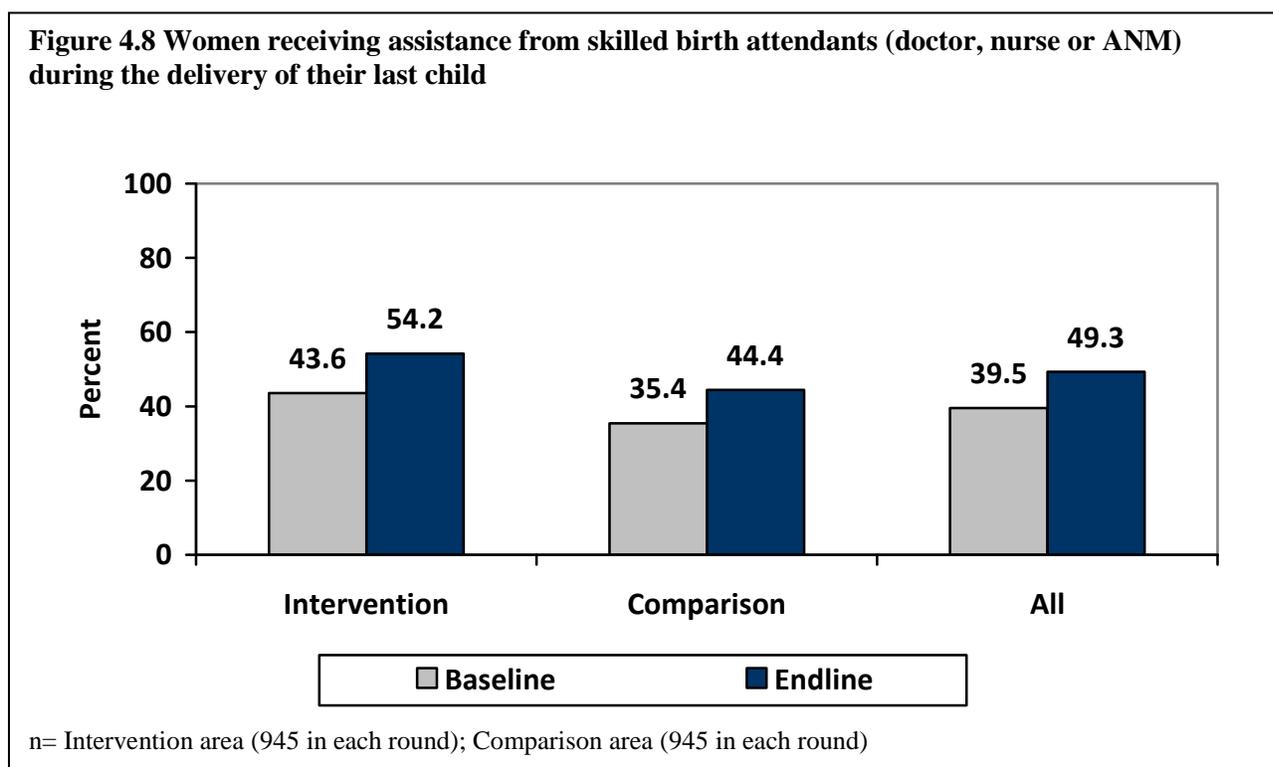
Among those who received antenatal care during endline were further asked about type of advice or counseling they received from the health providers during their ANC visit. The types of advice or counseling received by the women during their visit are given in Table 4.3. Over 90% of the women reported receiving counseling on 7 out of 11 listed aspects, and about four-fifths received counseling on other four topics. Women in intervention area were more likely to receive advice or counseling on different aspects than those of comparison area.

Table 4.3 Respondents who received advice or counseling from health providers during their last pregnancy at endline

Type of advice or counseling	Intervention (n=881)	Comparison (n=873)	All (n=1754)
The need for pregnant women to get sufficient rest during pregnancy	97.6	95.3	96.5
Healthy eating for pregnant women	98.3	95.2	96.8
The need for women to have one extra meal per day during pregnancy	94.3	90.7	92.5
The need for women to take iron after the first trimester of pregnancy	99.4	95.8	97.6
The importance of institutional delivery	93.8	91.5	92.6
Breastfeeding within 1 hour of birth	95.5	90.5	93.0
Exclusively breastfeeding infants until they are 6 months old	94.1	91.4	92.8
Infants and young child feeding, other than breastfeeding, such as when to start complementary foods, what kinds of foods to give infant and young children	80.8	77.3	79.1
Food consumption for anemia	79.0	81.7	80.3
Avoid alcohol	83.4	80.5	82.0
Avoid smoking	84.0	80.6	82.3

b) Utilization of delivery services

All women were asked about the persons who assisted with the delivery of their last child. A higher proportion (54%) of women in intervention than in comparison (44%) area reported receiving assistance from skilled providers (doctor, nurse or ANM) during their last delivery. This figure was significantly higher compared to the baseline figures in both areas with slightly a higher level of increase in intervention than in comparison area (by 11 vs. 9 percentage points) (Figure 4.8).



c) Utilization of postnatal services

Slightly a higher proportion (59%) of women in intervention than in comparison (53%) area reported having received postnatal services from any of the health facility following the birth of their youngest child. Those receiving postnatal services increased slightly in both areas compared to the baseline survey results (Table not shown). Respondents were also asked about the persons they first consulted for receiving postnatal services after the birth of their last child. Approximately 55% of the women in intervention and 46% in comparison area reported receiving postnatal care from a skilled provider and another 4% from each area received such care from a trained provider. The proportion of women who received postnatal services from either a skilled or trained provider increased significantly ($p < .05$) from 54% to 59% in intervention and from 47% to 51% in comparison area (Table 4.4).

Table 4.4 Respondents by persons first consulted to receive postnatal services following the delivery of their last child

First PNC care person	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Health Personnel						
Doctor	17.8	13.4	11.3	7.9	14.6	10.7
Staff nurse/ANM	23.7	41.5	26.8	38.1	25.2	39.8
Health assistant/AHW	8.8	3.9	5.5	3.4	7.1	3.7
MCH worker	3.7	-	2.3	1.2	3.0	0.6
Village health worker (VHW)	-	-	0.7	-	0.4	-
Other Person	54.0	58.8	43.6	49.4		
FCHV	1.1	-	2.2	1.7	1.6	0.8
Trained TBA	1.7	0.3	0.5	0.8	1.1	0.6
TBA	-	-	-	0.2	-	0.1
Mother's groups	0.1	-	-	-	0.1	-
Other (sister-in-law; husband; family member)	0.1	-	-	-	0.1	-
Did not receive PNC	43.1	40.8	50.6	46.7	46.8	43.8

Respondents were also asked about the time when they received first check up services from health personnel following the birth of their last child. Over half (51%) of the women in intervention and 42% in comparison area reported that they were checked by a health worker within one hour following the birth of their last child (Table 4.5). Those who received check up services within 24 hours following the birth increased significantly in both areas at endline, however, the pace of increase was slightly higher in comparison than in intervention area (by 12 vs. 15 percentage points).

Table 4.5 Respondents by timing of receiving first check up services from health personnel following the birth of their last child

Timing of first PNC care	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Less than one hour	28.8	50.7	21.4	42.2	25.1	46.5
Within 24 hours	16.4	6.1	12.6	7.1	14.5	6.6
After the first day	3.1	1.4	7.3	0.4	5.2	0.9
After the first week	5.9	0.6	5.6	0.8	5.8	0.7
None	2.5	0.3	2.5	2.8	2.5	1.5
Do not know	0.2	-	-	-	0.1	-
Did not receive PNC	43.1	40.8	50.6	46.7	46.8	43.8

The Government of Nepal has emphasized women to receive postnatal checkups at least three times (first within 24 hours, second within 3 days and third within 7 days) following delivery. Respondents were also asked about the number of postnatal checkups they received within seven days following the birth of their last child. Overall, 24% of the women in intervention and 19% in comparison area had received recommended number (3 times) of postnatal checkups from a health worker within 7 days following birth. Although this figure increased significantly ($p < .01$) in both areas (by 14 percentage points in intervention and 11 percentage points in companion area) still over three-quarters had not received recommended number of checkups within 7 days after the birth. Therefore, this reflects the call for creating awareness among the women about the need for

receiving recommended number of postnatal checkups within 7 days from the health worker for the good health of both the mother and newborn.

Table 4.6 Respondents by number of times receiving postnatal checkups from health personnel within a week following the birth of their last child

Times HW checked (within 7 days)	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
None	51.7	41.8	59.0	50.3	55.4	46.0
One time	25.7	14.8	21.4	15.8	23.5	15.3
Two times	12.5	19.8	11.6	15.2	12.1	17.5
Three times or more	10.1	23.6	7.9	18.7	9.0	21.2

Women were also asked about the timing of receiving first checkup services by their youngest child from a health worker following birth. A higher proportion (51%) of the children in intervention than in comparison (43%) area had received health checkups from the health worker within 24 hours following birth. The proportion of children receiving first health checkups within 24 hours following birth increased significantly ($p<.01$) from 45% to 57% in intervention and 34% to 49% in comparison area (Table 4.7). However, approximately two-fifths of the women in intervention and nearly half in comparison areas reported that their child was not checked by the health personnel within seven days following delivery indicating the need for informing women of the study areas about the importance of getting checkup services for the newborn within seven days following delivery.

Table 4.7 Respondents by timing of receiving first check up services by their youngest child from health personnel following delivery

Time when HW checked	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
Less than one hour	29.6	50.5	22.2	42.6	25.9	46.6
Within 24 hours	15.1	6.3	11.3	6.3	13.2	6.3
After the first day	3.7	1.8	7.7	0.7	5.7	1.3
After the first week	14.5	4.0	17.8	3.1	16.1	3.5
None	36.5	37.4	40.7	47.2	38.6	42.3
Do not know	0.5	-	0.2	-	0.4	-

Women were also asked about the number of days they took iron folic tablets following the birth of their youngest child. More women (44%) in intervention than in comparison (31%) area had used iron/folic acid for recommended duration (6 weeks or more) following the birth of their last child. Use of iron/folic acid for recommended duration increased significantly ($p<.01$) in both areas; however, the extent of increase was much higher in intervention than in comparison area (by 17 vs. 9 percentage points). Overall, the above findings suggest for encouraging mothers to receive iron folic tablets up to the recommended duration following child birth.

Table 4.8 Respondents who had taken iron folic tablets following the birth of their youngest child

Use of iron/folic acid after delivery	Intervention		Comparison		All	
	BL (N=945)	EL (N=945)	BL (N=945)	EL (N=945)	BL (N=1890)	EL (N=1890)
None	48.3	30.6	56.6	41.5	52.4	36.0

Less than 6 weeks	25.0	25.8	20.7	27.2	22.9	26.5
6 weeks or more	26.8	43.6	22.6	31.3	24.7	37.5

Exposure to Peer Facilitator

Information regarding exposure of respondents to peer facilitator was collected in the survey. Findings on these aspects are described in this chapter.

5.1 Exposure to peer facilitator

Familiarity with peer facilitator

At endline, all women were asked if they have ever met *Suaahara* peer facilitator. Nearly three-quarters (72%) of the women in intervention area affirmed to have ever met *Suaahara* peer facilitator. Two women in comparison area also reported meeting peer facilitator in the past. Almost all the peer facilitators were female; and nearly 44% had children below 2 years of age and 3% were currently pregnant. The rest (53%) were neither currently pregnant nor had a child below 2 years of age (Table 5.1).

Table 5.1 Respondents who have ever met *Suaahara* peer facilitator and their characteristics, endline

Description	Intervention	Comparison	All
Ever met a PF			
Yes	71.6	0.2	35.9
No	28.4	99.8	64.1
Total (n)	945	945	1890
Gender of PF			
Female	99.3	50.0	99.1
Male	0.7	50.0	0.9
Total (n)	677	2	679
Current and past pregnancy status			
Currently pregnant	3.1	-	3.1
Have a child below 2 years of age	43.8	-	43.7
Neither currently pregnant nor have a child below 2 years of age	53.1	100.0	53.2
Total (n)	672	1	673

Meeting with peer facilitator

Women who had met with peer facilitator were also asked about the first time they had met them. Nearly two-fifths of the of the women in intervention had met the peer facilitator within 10-13 months before the survey date, followed by 25% met them within 7-9 months and another 24% met within 4-6 months. Over one-third (35%) of the women had met peer facilitator for 3 or more times in the last six month prior to survey and about a quarter had met two times. Over one-third had met once (Table 5.2).

Table 5.2 Respondents who met the peer facilitator for the first time

Description	Percent
Timing of the first meeting with PF	
Within 1-3 months	14.9
Within 4-6 months	23.8
Within 7-9 months	24.8
Within 10-13 months	36.5
Total (n)	677
Number of times meet to PF	
0	5.8
1	34.9
2	24.4
3	17.6
4+ (4-8)	17.4
Total (n)	677

When further asked about the last time they had met with peer facilitator, 15% of the women had met within 30 days from the survey date and 42% met them one month ago. About a quarter of women met the facilitator in 2-3 months and another 10% met in 4 months prior to the survey while 7% of the women had met the peer facilitator last time more than 5 months before the survey date (Table 5.3). Majority of the women reported that they met peer facilitator at the time of food demonstration (22%), health mothers' group meeting (19%) and other place in ward (24%). About one-tenth of the women reported that peer facilitators themselves visited to their homes.

Table 5.3 Respondents who met the peer facilitator last time and meeting place

Description	Percent
Time of the last meeting (in months)	
Within a month	15.1
1	41.9
2	13.7
3	12.0
4	10.2
5 months or ago	7.1
Total (n)	679
Place of the last meeting	
Other place in ward	23.8
Food demonstration	21.9
Health mothers' group meeting	19.1
At my home	9.2
Health events/Primary health care outreach clinic/EPI clinic/GMP	5.9
At her/his home	5.8
HFP mothers' group meeting	5.2
Health post/sub-health posts	4.1
Outside of ward	2.5
Fields while working	1.5
Fetching water	0.6
Market	0.4
Collecting firewood	0.1
Total (n)	677

Women were also enquired about the activities carried out by the peer facilitator at the time of their last meeting. They mentioned a number of activities that peer facilitators conducted during their last meeting. The most frequently mentioned activities performed by the peer facilitators during their recent meeting were: a) advice on making child food/feeding (60%), b) discussion on child nutrition/diet (52%), c) discussion on child health/illness (52%), d) demonstration on ways of making child food/child feeding (45%), and e) discussion of maternal nutrition/diet (41%). Over a quarter of the women also reported that they also discussed on maternal health or illness and use of soap and water or hand washing (Table 5.4).

Table 5.4 Respondents by activities done by peer facilitators during last meeting

Activities carried out by the PF on the last meeting (Multiple Response)	Percent
Advised on making child food/child feeding	59.5
Discussed child nutrition/ diets	52.4
Discussed child health/illnesses	51.8
Demonstrated making child food/child feeding	45.2
Discussed maternal nutrition/diet	40.8
Discussed maternal health/illnesses	35.0
Discussed soap and water/ hand-washing	25.6
Advised on improving chicken husbandry	9.2
Advised on improving garden	8.6
Discussed disposal of child feces	6.6
Discussed water purification	6.4
Talked about Bhanchhin Aama and encouraged me to listen	5.8
Checked toilet and its use/cleanliness	4.1
Checked vegetable garden	3.0
Checked chicken husbandry	3.2
Demonstrated gardening skill(s)	2.7
Demonstrated chicken husbandry skill(s)	2.7
Other	0.3
Do not know	2.4
Total (n)	677

Approximately 16% of the women reported that the peer facilitators also spoke with other members of their family members during their last meeting, mostly with their spouse and mother or mothers-in-law (Table 5.5).

Table 5.5 Respondents by interaction with peer facilitators

Description	Percent
Whether spoke with other members of your family	
Yes	16.1
No	83.9
Total (n)	677
Persons with whom PF spoke (Multiple Response)	
Spouse	55.0
Mother/mother-in-law	45.9
Father/father-in-law	14.7
Other child household member	14.7
Other adult household member	11.9
Total (n)	109

The women were also asked whether the peer facilitators used any behavior change communication material (BCC) while they were interacting with them. In response to the question, nearly three-quarters (74%) of the respondents said that the facilitators did use the BCC materials during discussion. The most frequently mentioned BCC materials were posters (93%), pictorial books (68%) and discussion cards (37%). Nearly 3-in-10 women also reported that the facilitators also performed hand washing demonstration at a hand washing station. The majority (77%) of the women perceived the interaction with their peer facilitators to be extremely helpful (31%) or helpful (47%) and over one-fifth (21%) found it to be okay. However, quite a small number of women (1%) did not perceive it to be helpful.

Table 5.6 Respondents mentioning types of materials used by the peer facilitators during last meeting

Description	Percent
Use of any materials by PF while interacting	
Yes	74.4
No	25.6
Total (n)	677
Types of materials used (Multiple Response)	
Posters	92.5
Pictorial books	67.5
Discussion cards	36.5
Hand washing demonstration at a hand washing station	29.4
PF handbook	7.1
<i>Sugandapur and Durgandapur</i> DVD	0.4
Do not know	0.2
Total (n)	504
Opinion on interaction with PF	
Extremely helpful	30.6
Helpful	46.8
Okay	21.3
Unhelpful	1.2
Extremely unhelpful	0.1
Total (n)	677

To the question "*In your opinion, does the PF work well with the FCHV of this ward?*" almost all (97%) of the women agreed that peer facilitator is working properly with the FCHV in their ward (Table not shown).

5.2 Influence of peer facilitators initiative

As discussed above in Section 9.3, of the 945 women in intervention area, 677 had ever met peer facilitators and 268 had never met them, and 945 were from comparison area. In this section, analyses have been made to examine the relationship between the exposure status and selected outcome indicators related to health and nutrition of both mothers and children.

On IYCF indicators

The percentage of children who had received minimum meal frequency was significantly higher among the women who had met with peer facilitators. Similarly, women having contact with PF were significantly more likely to provide eggs to their child within 24 hours prior to the survey date. However, no significant difference between exposed and non-exposed to PF was observed as far as minimum dietary diversity and consumption of meat items by their youngest child was concerned (Table 5.7). With regard to the maternal diets, women who had ever met to the PF were significantly more likely to received extra meals during pregnancy and breastfeeding than those who had never met PF and those in comparison area.

Table 5.7 IYCF Indicators by exposure to peer facilitator

Description	Intervention area		Comparison area (N=945)	All (n=1890)
	Ever met PF (n=677)	Never met PF (n=268)		
Minimum meal frequency	87.9 ^{ab}	76.5 ^b	82.4	83.5
Minimum dietary diversity	48.3	41.8	45.0	45.7
Consumption of eggs	21.0 ^{ab}	14.9	17.1	18.2
Consumption of meat items	21.4	19.4	19.2	20.0
Receiving extra meal during pregnancy (≥1 times)	72.7 ^{ab}	63.4 ^b	53.9	62.0
Receiving extra meals while breastfeeding (≥2 times)	48.7 ^{ab}	35.8	31.5	38.3

Statistical test: ^a- Comparison with intervention but not exposed with PF ($p < .05$); ^b - Comparison with comparison area ($p < .05$)

On maternal health and nutrition knowledge

Women of intervention area who had ever met PF were significantly more likely to have correct knowledge about need for receiving extra meal (1 or more times) and iron folic tablets (180 days or more) during pregnancy, and extra meal (2 or more times) during PNC than those who had not met PF and who were from comparison area. These findings show the contribution of program intervention in imparting knowledge about maternal nutrition and health to the women of program area.

Table 5.8 Maternal health knowledge by exposure to peer facilitator

Description	Intervention area		Comparison area (N=945)	All (n=1890)
	Ever met PF (n=677)	Never met PF (n=268)		
Correct knowledge about need for receiving extra meal during pregnancy (≥1 times)	97.9 ^{ab}	92.9	91.9	94.2
Correct knowledge (180 days) about need for receiving iron folic acid during pregnancy	87.9 ^{ab}	80.6 ^b	70.3	78.0
Correct knowledge about need for receiving extra meals during PNC (≥2 times)	71.3 ^{ab}	57.5	52.3	59.8

Statistical test: ^a- Comparison with intervention but not exposed with PF ($p < .05$); ^b - Comparison with comparison area ($p < .05$)

On child health and nutrition practice

The prevalence of childhood diarrhea within two weeks prior to the survey was slightly lower among women who had ever met the PF. However, no significant differences were observed in

these indicators between women who had ever met the PF and those who had never met her (Table 5.9).

Table 5.9 Child health and nutrition practice by exposure to peer facilitator

Description	Intervention area		Comparison area (N=945)	All (n=1890)
	Ever met PF (n=677)	Never met PF (n=268)		
Diarrhea in the last 2 weeks	19.9 ^b	23.9	25.4	23.2
Medicines given during illness	81.8 (n=33)	85.0 (n=20)	84.6 (n=65)	83.9 (n=118)

Statistical test: ^a- Comparison with intervention but not exposed with PF ($p < .05$); ^b - Comparison with comparison area ($p < .05$)

On maternal and nutrition care

There was no significant difference between women who had met PF and those who had not met them as far as ANC was concerned. However, those receiving iron folic acid during pregnancy and after delivery for recommended days and taking de-worming tablets during pregnancy was significantly higher among women who had met PF than their counterparts who had never met them (Table 5.10).

Table 5.10 Maternal and nutrition care by exposure to peer facilitator

Description	Intervention area		Comparison area (N=945)	All (n=1890)
	Ever met PF (n=677)	Never met PF (n=268)		
ANC provided	95.3 ^a	91.4	93.9	94.0
Number of ANC visits by mothers (4 times or more)	70.2 ^b	66.0	59.8	64.4
Use of iron folic acid during pregnancy (180 days or more)	59.5 ^{ab}	51.1 ^b	43.5	50.3
Deworming during pregnancy	92.0 ^{ab}	84.7	83.6	86.8
Assisted by skilled birth attendants (doctor, nurse or ANM)	53.6 ^b	55.6 ^b	44.4	49.3
Use of iron folic acid after delivery (42 days or more)	46.5 ^{ab}	36.2	31.3	37.5

Statistical test: ^a- Comparison with intervention but not exposed with PF ($p < .05$); ^b - Comparison with comparison area ($p < .05$)

The overall findings revealed that there was significant improvement on the level of knowledge and practice on maternal and child health and nutrition among the women who had ever met PF than those who had never met them. Thus, even in a short period of one year time, the PF intervention has made positive changes on these indicators.

Chapter 6

Summary, Conclusions and Recommendations

6.1 Summary and conclusions

a) Introduction

In order to assess the effectiveness and impact of the peer facilitator (PF) aspect of the *Suaahara* program, an evaluation including a baseline survey before the implementation of the PF intervention activities and an endline survey after the intervention activities, was felt necessary. For this purpose, *Suaahara* conducted a baseline and endline surveys to assess the effects of the program intervention. The main objective of the endline survey was to assess changes on maternal knowledge and practice related to maternal and child health and nutrition in both *Suaahara* PF intervention and non-intervention areas after the program implementation.

A quasi-experimental design was used with the intent of information collection at two points of time (pre and post intervention) among mothers of both areas. For this information was collected from mothers of 6-23 months old children using quantitative survey techniques. The same village development committees (VDCs) and wards that were selected in the baseline survey were included for the endline survey also. The sample size was 1890 mothers of children between 6-23 months old – 945 from intervention and 945 from comparison (control) areas in each round of survey.

b) Characteristics of respondents and households

Majority (>87%) of the women in both areas with slightly a higher percentage in intervention were between 18-34 years of age. Over half (51%-56%) of the respondents in both areas with slightly a higher percentage in intervention area had attended school. Over one-third of the children in both areas were between 6-11 months of age, 30% were between 12-17 months and about 32% were between 18-23 months old. No marked difference on age composition of the children was observed across the two study areas and between two survey points.

Over 4-in-5 households in both the intervention and comparison areas had access to improved water i.e. piped, well or tube well source. However, this figure remained almost unchanged between two survey points in both areas.

Only a small proportion (10% in intervention and 5% in comparison area) of the respondents reported treating water for drinking. The proportion of households who treated water for drinking increased significantly ($p<.01$) at endline in both areas with a higher level of increase in intervention than in comparison area (by 7 vs. 3 percentage points).

Over 85% of the women in intervention and 77% in comparison areas reported having toilet facilities in their houses. Those having toilet facility had increased significantly ($p<.01$) at endline in both areas, with a higher level of

increase in intervention (by 23 percentage points) than in comparison (by 20 percentage points) area. Those dropping children's feces into safer place (i.e. into toilets) increased significantly ($p<.01$) in both areas (by 16-17 percentage points). The above findings indicated that still a sizeable number of households do not dispose children's feces in the safer places.

c) IYCF knowledge and practices

Knowledge about breast feeding and complementary feeding

Knowledge about duration of feeding breast milk only to a baby

Approximately 98% of the women in intervention and 94% in comparison area in endline correctly mentioned that a child should be given "breast milk only" for up to six months. The corresponding value in the baseline was 82% in both areas indicating a significant ($p<.01$) improvement in women's knowledge. However, the level of increase was appreciably high in intervention than in comparison area (by 16 vs. 13 percentage points).

Complementary feeding knowledge

Overall, there were notable improvements on the level of knowledge of women of intervention area regarding the foods that are best for the children between 6-23 months than those of comparison area *indicating the contribution of program intervention in imparting knowledge about complementary feeding to the children.*

Breastfeeding

More women (74%) in intervention than in comparison area (63%) had given breast milk to their youngest child within one hour of birth, this figure increased significantly ($p<.01$) in intervention area (by 11 percentage points) but remained relatively unchanged in comparison area.

Consumption of food groups

The average number of food groups consumed (i.e. individual dietary diversity score) by a child aged 6-23 months was slightly higher (3.4 varieties) in intervention than in comparison area (3.3 varieties) while the corresponding values in the baseline was 3.0 and 3.1 respectively.

Minimum meal frequency

Slightly a higher (85%) proportion of the children in intervention than those of comparison area (82%) had received minimum meal frequency in the last 24 hours. However, no notable improvement on this indicator was observed at endline in intervention while in comparison area it increased significantly ($p<.01$) from baseline level.

Minimum dietary diversity

The proportion of children who were fed four or more varieties of foods increased significantly ($p<.01$) at endline in both areas but the level of increase was notably high in intervention than in comparison area (by 15 vs. 7 percentage points) indicating the visible impact of the program intervention.

Hand washing with soap

Overall, the knowledge regarding washing hands with soap in all five critical occasions increased significantly ($p<.01$) in both areas (5% to 19% in intervention and 5% to 9% in comparison area) with a notable improvement in intervention than in comparison area (by 14 vs. 4 percentage points) indicating the visible contribution of the program in imparting knowledge about the importance of washing hands with soap to the women.

Compared to the baseline, there was notable improvement in hand washing practices among women of the intervention area on five critical occasions than those of comparison area. Although the proportion of women who

washed hands in all five critical times increased significantly ($p < .01$) at endline in intervention area, the level remained still low (3% at BL and 7% at EL).

Childhood diarrhea and its treatment

25% of the children in comparison and 21% in intervention area were suffering from diarrhea in the last two weeks preceding the survey. This figure declined significantly in both areas ($p < .01$ in intervention and $p < .05$ in comparison) at endline, with a great extent of decline in intervention than in comparison area (by 8 vs. 4 percentage points).

Slightly a higher proportion (87%) of the women in intervention than in comparison (85%) area had given same or more than usual amount of food to their child during last diarrheal episode. Those giving same or more than usual amount of food during diarrhea increased significantly ($p < .01$) at endline in both areas with a higher level of increase in comparison than in intervention area (by 35 vs. 13 percentage points). With regard to the liquid, only a small proportion of the women in both the intervention (14%) and comparison (8%) areas had given more than usual amount of liquid to their child during diarrhea.

Over 58% of the children in both areas had received ORS. About half in intervention and two-fifths in comparison areas had also received homemade fluid during last diarrheal episode. The proportion of children receiving ORS and homemade fluids remained almost at the similar level in both surveys. However, those receiving zinc tablets increased significantly ($p < .01$) from 22% to 33% in intervention and 15% to 26% in comparison area at endline. The overall findings thus revealed that the practice of giving either ORS or homemade fluid and zinc tablets to the children during diarrhea was less common in both areas.

d) Maternal health and nutrition knowledge and practices

Food consumption

Maternal dietary diversity

On an average, each woman had consumed 3.7 varieties of food groups in intervention and 3.6 varieties in comparison area during 24 hours preceding the survey. There was slight improvement in this indicator between baseline and endline survey, however, the level of change was slightly higher in intervention than in comparison area. Overall, the proportion of women who consumed varieties of food groups had increased markedly in intervention than in comparison area.

Consumption of extra meals during pregnancy

The proportion of women who received extra meals (≥ 1 times) during their last pregnancy was much higher (70%) in intervention than in comparison (54%) area, while the level of increase was significant ($p < .01$) at endline in intervention area only.

Consumption of extra meals while breastfeeding

Over 45% of the women in intervention as against only 32% in comparison area had consumed two or more extra meals in a day during their lactational period. Those who consumed recommended number of extra meals increased notably in intervention (by 22 percentage points) than in comparison areas (by 4 percentage points) at endline. However, still a sizeable number of lactating mothers in both areas had not consumed recommended number of extra meals.

Maternal health knowledge (ANC and PNC)

Knowledge about need for receiving extra meals during pregnancy

The proportion of women having correct knowledge about the need for receiving extra meals during pregnancy was higher in

intervention (97%) than in comparison (92%) area. Those having correct knowledge about this indicator increased significantly ($p < .01$) in both areas with slightly more gain in intervention (by 12 percentage points) than in comparison (by 11 percentage points) area.

Knowledge about need for iron/folic acid during pregnancy

Approximately 86% of the women in intervention compared to 70% in comparison area correctly mentioned that a woman should take iron/folic tablets for 180 days. Those having correct knowledge about this indicator increased significantly ($p < .01$) at endline in both areas, however, the level of increase was much higher in intervention than in comparison area (by 38 vs. 30 percentage points).

Knowledge about need for receiving extra meals during PNC

67% of the women in intervention compared to 52% in comparison area correctly mentioned that a lactating mother should take two or more extra meals. This figure increased significantly ($p < .01$) (by 17 percentage points) at endline in intervention area while it remained unchanged in comparison area indicating the contribution of program intervention in imparting knowledge to women of intervention area about it.

Maternal health practices (ANC, delivery and PNC)

Antenatal care

Approximately 94% of the women in both areas reported to have received antenatal services/counseling during their last pregnancy, which is significantly ($p < .01$) higher than that of the baseline figures of 88% in intervention and 87% in comparison area.

The proportion of women who received antenatal services for the first time from the skilled or trained provider increased

significantly ($p < .01$) at endline (by 14 percentage points) in both areas. More women (69%) in intervention than in comparison (60%) area had received the recommended number of four antenatal checkups during their last pregnancy. These endline figures are significantly ($p < .01$) higher by 13-14 percentage points than baseline figures.

A higher percentage (57%) of women in intervention than in comparison (44%) area had taken iron/folic tablets for recommended days. Those receiving iron/folic tablets for recommended days increased significantly ($p < .01$) in both areas with a higher level of increase in intervention than in comparison areas (by 18 vs. 12 percentage points). The above findings indicate that still a sizeable proportion of the women in both areas do not use iron/folic tablets for recommended days.

The majority (84%-90%) of the women in both areas with a higher percentage in intervention area had taken medicines for worm during their last pregnancy. These figures are significantly higher ($p < .01$) compared to the baseline survey results in both areas.

Utilization of delivery services

Over half (54%) of the women in intervention compared to 44% in comparison area reported receiving assistance from skilled providers (doctor, nurse or ANM) during their last delivery. This figure was significantly higher compared to the baseline figures in both areas with slightly a higher level of increase in intervention than in comparison areas (by 11 vs. 9 percentage points).

Utilization of postnatal services

Slightly a higher proportion (59%) of women in intervention than in comparison (53%) area reported having received postnatal services from any of the health facility following the birth of their youngest child. Those receiving

postnatal services increased slightly in both areas compared to the baseline survey results.

Approximately 55% of the women in intervention and 46% in comparison area reported receiving postnatal care from a skilled provider and another 4% from each area received such care from a trained provider. The proportion of women who received postnatal services from either a skilled or trained provider increased significantly ($p < .05$) from 54% to 59% in intervention and from 47% to 51% in comparison area.

Those who received check up services within 24 hours following the birth increased significantly in both areas at endline, however, the pace of increase was slightly higher in comparison than in intervention area (by 12 vs. 15 percentage points). 24% of the women in intervention and 19% in comparison area had received recommended number (3 times) of postnatal checkups from a health worker within 7 days following birth. Although this figure increased significantly ($p < .01$) in both areas (by 14 percentage points in intervention and 11 percentage points in companion area) still over three-quarters had not received recommended number of checkups within 7 days after the birth.

Similarly, 51% of the children in intervention and 43% in comparison area had received health checkups from the health worker within 24 hours following birth. The proportion of children receiving first health checkups within 24 hours increased significantly ($p < .01$) from 45% to 57% in intervention and 34% to 49% in comparison area. However, approximately two-fifths of the women in intervention and nearly half in comparison areas reported that their child was not checked by the health personnel within seven days following delivery.

44% of the women in intervention compared to only 31% in comparison area had used

iron/folic acid for recommended duration (6 weeks or more) following the birth of their last child. Use of iron/folic acid for recommended duration increased significantly ($p < .01$) in both areas; however, the level of increase was much higher in intervention than in comparison area (by 17 vs. 9 percentage points).

e) Exposure to peer facilitator

Exposure to peer facilitator

Nearly three-quarters (72%) of the women in intervention area affirmed to have ever met *Suaahara* peer facilitator. Over one-third (35%) of the women had met peer facilitator for 3 or more times in the last six month prior to survey, and about a quarter had met two times. Over one-third had met once.

15% of the women had met peer facilitator within 30 days from the survey date and 42% met them one month ago. Majority of the women reported that they met peer facilitator at the time of food demonstration (22%), health mothers' group meeting (19%) and other place in ward (24%). About one-tenth of the women reported that peer facilitators themselves visited to their homes.

The most frequently mentioned activities performed by the peer facilitators during their recent meeting were: a) advice on making child food/feeding (60%), b) discussion on child nutrition/diet (52%), c) discussion on child health/illness (52%), d) demonstration on ways of making child food/child feeding (45%), and e) discussion of maternal nutrition/diet (41%). Over a quarter of the women also reported that they also discussed on maternal health or illness and use of soap and water or hand washing.

Approximately 16% of the women reported that the peer facilitators also spoke with other members of their family during their last meeting, mostly with their spouse and mother or mothers-in-law.

Nearly three-quarters (74%) of the respondents said that the facilitators did use the BCC materials during discussion, mostly posters (93%), pictorial books (68%) and discussion cards (37%). Nearly 3-in-10 women also reported that the facilitators also performed hand washing demonstration at a hand washing station. The majority (77%) of the women perceived the interaction with their peer facilitators to be extremely helpful (31%) or helpful (47%) and over one-fifth (21%) found it to be fine. However, quite a small number of women (1%) did not perceive it to be helpful.

Almost all (97%) the women agreed that peer facilitator is working properly with the FCHV in their ward.

Influence of peer facilitators initiative

Of the 945 women in intervention area, 677 (72%) had ever met peer facilitators and 268 (28%) had never met them. The overall findings revealed that there was significant improvement on the level of knowledge and practice on maternal and child health, and nutrition among the women who had ever met peer facilitators than those who had never met them. The significant improvements were observed on particularly on the proportion of:

- Children who had received minimum meal frequency
- Children consuming eggs
- Women receiving extra meals during pregnancy and while breastfeeding
- Women having correct knowledge about the need for receiving extra meals and iron folic acid during pregnancy, and need for receiving extra meals during PNC
- Women receiving ANC
- Women using iron folic acid and deworming tablets during pregnancy, and iron folic acid after delivery

6.2 Recommendations

The overall findings indicate that PF intervention has brought notable improvements in several aspects of knowledge and practice on health and nutrition including IYCF indicators. The PF interventions have been effective in bringing significant and favorable changes in intervention areas in the following aspects:

- Hand washing in five critical times
- Breastfeeding within one hour of birth
- Providing minimum meal frequency and dietary diversity to the child
- Knowledge about duration of exclusive breastfeeding and introduction of complementary feeding
- Awareness of at least one source of antenatal service
- Need for receiving extra meals during pregnancy
- Number of days that a woman should take iron/folic tablets
- Knowledge of sources of postnatal care
- Seeking advice or treatment from any health facility for care of diarrhea
- Receiving ANC services from different providers
- Taking worm medicine during pregnancy
- The peer facilitators working properly with the FCHV
- Improvement in nutritious food intake by the children and increase in maternal knowledge and practice on consuming extra meals among the women who have ever met the Suaahara peer facilitator

Though not highly significant level but certain level of several changes were brought about

by the PF intervention program in certain program aspects include:

- Intake of maternal dietary diversity
- Knowledge about need for receiving extra meals during postnatal period
- Reduction in diarrhea episodes among children
- Receiving four times antenatal checkup
- Discussion carried out by the *Suaahara* peer facilitators on various aspects of nutrition and maternal/child health
- Use of BCC materials, particularly posters and pictorial book by the peer facilitators

The PF intervention program has not been effective in bringing improvement in the some aspects of the program. In other words, there was no notable increase in the proportion of the mothers in some aspects of the program in the PF intervention area compared to the comparison area from the baseline to the endline.

Regular BCC activities under the *Suaahara* program have also contributed to the improvement in health and nutrition indicators in the PF non-intervention areas. However, the rate of improvement in the PF intervention area due to PF exposure was found to be higher even in a short period of one year indicating that the intervention has further added value to the improvement in health and nutrition indicators. Thus PF intervention reflects that the program is promising and scalable. Therefore, it is recommended that while scaling up or continuing the program, health education activities followed by other managements support should be enhanced in the following areas of IYCF, peer facilitator and other maternal and child health:

- Need for consumption of extra meals during lactational period

- Providing vitamin-A to the child
- Need for informing women about the importance of providing adequate liquid and solid foods to the child during diarrhea
- Practice of giving ORS/homemade fluids during episode of diarrhea
- Need for informing pregnant women about importance of consuming iron/folic acid during pregnancy and following child birth
- Need for soliciting assistance from skilled providers during delivery
- Need for receiving postnatal care including health check up within 24 hours following birth from skilled providers
- Dissemination of information on existence of the *Suaahara* peer facilitators and encouraging mothers to contact them
- Adequate mobilization of the *Suaahara* peer facilitators