SUMMARY AND CONCLUSIONS

Chapter V

SUMMARY AND CONCLUSIONS

The Government of India has committed to achieve the nutrition Millennium Development Goals of halving underweight rates among preschool children from 54% to 27% between 1990 and 2015, and is also committed to reducing infant and child mortality and improving maternal health outcomes (MDGs 4 and 5). Since malnutrition is closely linked to several of the MDGs, strengthening of the Integrated Child Development Services (ICDS) is imperative since it is the major national program addressing malnutrition among children. Mere physical expansion of the ICDS program is not enough to combat this complex problem of malnutrition. The program has reached a stage where it has become essential to harmonize the expansion of the program and its content enrichment in order to accelerate the implementation in achieving the core objectives, especially to reduce the child malnutrition and mortality (ICDS-IV Project Concept Note 2007).

NGOs are increasingly becoming an important partner in government efforts towards health and nutrition care. This is in part because they are expected to be efficient and effective; innovative, flexible, independent, and responsive to the problems of poor people at the grass-roots level (Bagci 2007). The main characteristics of NGOs are their ability to reach poor communities in remote areas that have few basic resources or infrastructure, and where government services are limited or ineffective. Also, they have the ability to promote local participation in the design and implementation of public programs (Porter 1991).

It has long been recognized that as ICDS expands its reach, the efforts of the government sector alone would be inadequate and that there is a need for involving voluntary organizations in its implementation. Hence, a policy of involving the voluntary sector in supplementing government's efforts was enunciated in the Seventh Five Year Plan (VII Five Year Plan, GOI 1985). Further, it was realized that if the NGO that was entrusted with managing an ICDS project also provided health facilities, the community would receive greater benefits in terms of the health services.

The ICDS program has been the subject of a large volume of research, however, most evaluations have focused on the quality of infrastructure and inputs, and the coverage of activities. There have been few rigorous evaluations of the program's impact on nutritional status or health behaviors, and also scanty literature is available on NGOs managing ICDS.

In Gujarat as well as India, despite ICDS being in existence for several decades now, there continues to be a high prevalence of detrimental child feeding and health care practices. And the NHE activities in communities tend to be sporadic, unplanned and without support of attractive and effective audio visual aids. Further, the NHE component is not effectively monitored in ICDS like other activities such as immunization, leading to neglect of this service at field level. In several states there is little or no improvement in quality of implementation of nutrition services in ICDS (Kanani and Zararia 1996, NIPCCD 2006).

NGO system and ICDS

Many NGOs manage ICDS especially in Gujarat; however, little is known of what is the quality of services implemented by them within the overall system. For studying the evaluation of program implementation holistically in the context of an overall system in a socio cultural context, the methodology of Health Systems Research is valuable and needs to be used for nutrition program evaluation.

Health Systems Research (HSR) is concerned with improving the health of people and communities, by enhancing the efficiency and effectiveness of the health system as an integral part of the overall process of socio-economic development, with full involvement of all partners.

According to Varkevisser (IDRC/WHO 2003), Health Systems Research is problem and action oriented; participatory; multisectoral, multidisciplinary and is replicable.

Although HSR related studies in India have been carried out in the areas of health need assessment, managerial processes, health organizations and health care delivery systems, there is dearth of information on nutrition program evaluation studies to assess the quality of nutrition services. Further, nutrition and health care services under the voluntary sector and their impact on the nutritional status of beneficiaries have not been adequately studied. In particular for ICDS, research on NGOs managing ICDS is very scanty.

Hence, the present Health Systems Research study was undertaken in rural Vadodara to study selected nutrition services in NGO – implemented ICDS.

The overall objective of this research was to adapt the Health Systems Research methodology to study selected nutrition services (Growth Monitoring (GM), Supplementary Feeding, *Rab* supplementation and Nutrition Health Education) of the NGO managed - ICDS in rural Vadodara and to strengthen the system for improved implementation and

monitoring of these selected services. The focus was especially on strengthening capacity of ICDS to improve Infant and Young Child Feeding (IYCF) practices in the community.
This research consisted of two phases.

- Phase I was the situational analysis – current implementation of selected ICDS services in the NGO system which formed the basis of the intervention
- Phase II was capacity building training intervention towards enhanced implementation of ICDS in the NGO system and its process-impact evaluation

METHODOLOGY

The Health Systems Research (HSR) approach aimed to study the various elements of an NGO system which provides nutrition related ICDS services to improve the health of the children below 3 years.

Phase I: Quality of implementation of nutrition related NGO-managed ICDS services for children under 3 years in rural Vadodara – A Situational Analysis

Site and Sample of the Study

The study was carried out in a rural NGO, which offers nutrition and health care services through 40 ICDS AWCs in 27 villages in and around Nandesari area of Vadodara district. Three ICDS services which relatively have a greater influence on nutritional status of beneficiaries were selected, namely: Growth Monitoring (GM), Nutrition Health Education (NHE) service and Supplementary Feeding (SF) (including *Rab* supplementation program for encouraging initiation of complementary foods (CF) in 7-12 months old children).

To study the ***functionary perspective***: 20 NGO-ICDS AWWs (50%) were randomly selected as the sample.

To study the ***beneficiary perspective***: four AWCs from the total 40 AWCs were randomly selected. All the children from 6-35 months who were available and whose parents consented to participate were enrolled for the baseline survey (N=115 mother-child pairs). This age group of 6-35 months is the most crucial period for growth and development of children, where the prevalence of undernutrition is also very high.
Table 5.1 summarizes the quantitative and qualitative indicators of data collection employed for Phase I.

Table 5.1 Indicators and Tools for Data Collection

Indicator	Sample	Method and Tool
Functionaries		
Profile of AWWs & Supervisors	20 + 2	Semi structured interview
Knowledge related to ICDS and IYCF services		
Quality of implementation of ICDS services	35	Direct observations, Continuous Unstructured observations
Beneficiaries		
Awareness and practices of mothers related to IYCF and child care	115	Semi-structured interview
Health care seeking practices		
Morbidity		
Socio-economic status		
Influences on mothers: IYCF decisions		
Family support received by the mother		
Knowledge of mothers related to ICDS services	53	
Anthropometry ▪ Weight for age, Height for age and weight for height (children 6-35 months) ▪ Weight, height and BMI (mothers)	115	Standard methods Secondary Data Review
Hygiene of the mother, child and environment	115	Direct observation
Dietary intake of children (one day) on 50% sample	60	24-hour dietary recall

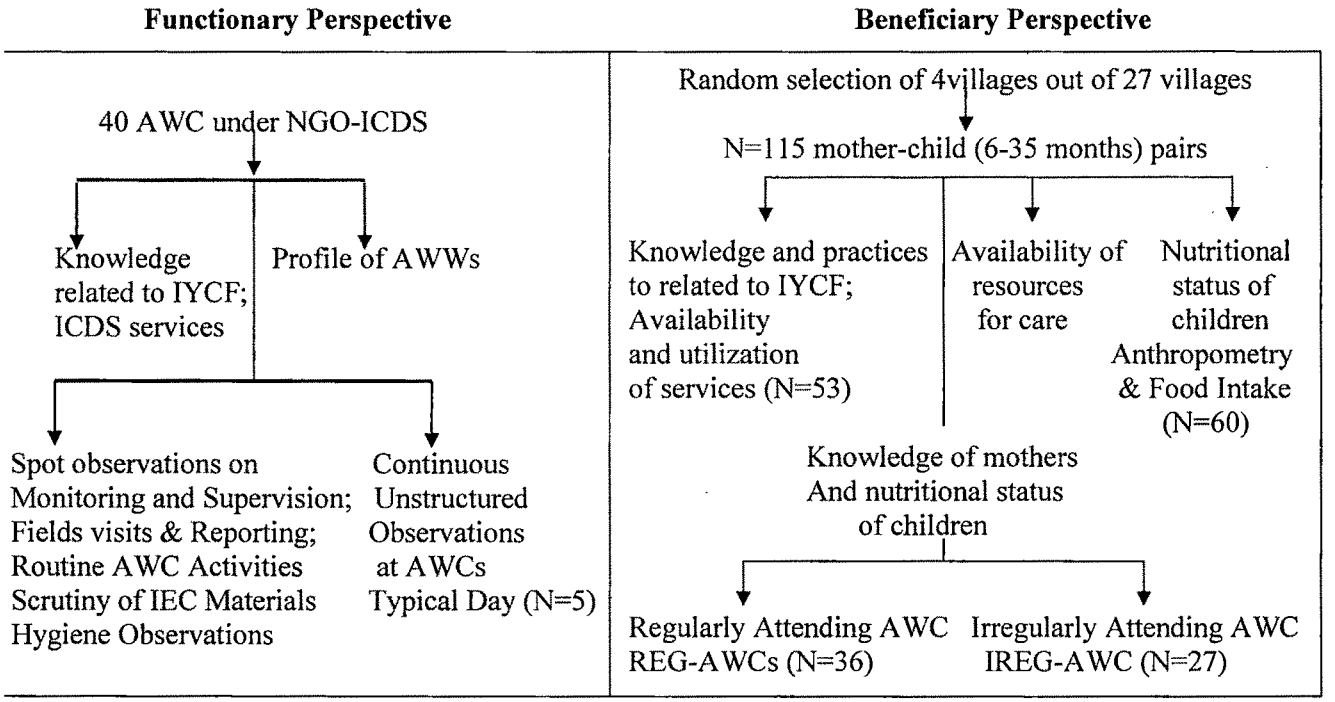
Functionary perspective was studied in terms of:

1. IYCF knowledge and practices in relation to newborn feeding and breastfeeding; complementary feeding-CF; health related knowledge and practices; feeding during and after illness; hygiene care
2. Profile of AWWs: educational status, work experience; objectives of selected ICDS services; delivery of services; benefits of the services; difficulties experienced in implementing the services

Beneficiary perspective was studied in terms of:

1. IYCF knowledge and practices of the mothers in relation to newborn feeding and breastfeeding; complementary feeding-CF; health related knowledge and practices; feeding during and after illness; hygiene care
3. Resources available to the mother or child caregiver for care in terms of: economic resources: the socio-economic status of the family; nutritional status and well being of mother; family support for child care
4. Morbidity history of the children
5. Dietary intake of the children from complementary foods
6. Nutritional status of the children

Figure 5.1 Study Design of Phase I



Phase II: Capacity Building Training Intervention Towards Enhanced Implementation of ICDS in the NGO system

Part A: Improving the Quality of Implementation of Nutrition Related ICDS Services within the NGO System in Rural Vadodara

Based on results of situational analysis phase, the intervention included:

- A review and modification of the current job functions of ICDS functionaries,
- Refresher training to ICDS staff to enhance their knowledge regarding measures to control under three malnutrition with a focus on IYCF practices.
- Developing IEC materials for behaviour change and to strengthen communication skills of functionaries.
- Facilitating the implementation of a modified and simple monitoring system to monitor quality of implementation of specific services

Intervention Phase

The entire intervention of one year was divided in three sections.

Section 1 – the capacity building training workshop was held in NGO premises for 4 days. Messages were given through group meetings, demonstrations & role plays. Pre and post intervention questionnaires were used to assess the knowledge of the AWWs before and

immediately after the training. After an interval of one month a reinforcement session covering all topics was conducted.

Section 2 – all 35 AWWs held group meetings in their respective AWCs and imparted NHE to mothers on IYCF and child care using flash cards as IEC material. Each NHEC session was systematically observed and recorded in an observation checklist. Thereafter, drawbacks observed in communication skills were sought to be improved through on-the-spot guided practice. Improvement in functioning of ICDS and in counseling and communication skills of AWWs was assessed after the intervention period of one year.

Section 3 - To assess whether the enhanced NHEC had any impact on the beneficiary families and 6-35 month old children, it was necessary to compare "good performers (AWWs effectively conducting NHEC sessions)" with the "poor performers (AWWs not conducting the enhanced NHEC sessions)". These two were designated as the *Intervened Group* (IG) and the *Control Group* (CG) respectively. The *two* AWWs for the IG were randomly selected out of the *five* who were found to be conducting the NHEC sessions satisfactorily as revealed from the process evaluation phase. For the CG, *two* AWWs were again randomly selected from the *five* who could not / did not conduct NHEC sessions for various reasons. For pre and post assessment of the intervention, 40 mothers in the IG and 30 mothers in the CG consented to participate and were hence taken as the sample for the intervention phase.

Data and methods: Pre intervention data was collected on knowledge and practices of mothers related to IYCF, utilization of ICDS services, nutritional status of the children, their diet intake and morbidity history as described in section 1. After an observation period of 6 months where in NHEC intervention through mother's meetings took place, post data was collected on the same above mentioned parameters. Data was analyzed and compared to see the change if any between the two groups (IG vs. CG).

During post data collection it was observed that all 40 mothers of the IG did not attend NHEC meetings conducted by the AWWs. Hence, during data analysis the IG was bifurcated into two groups: those who attended NHEC meetings (AT-NHEC) and those mothers who did not (NAT-NHEC) and these two groups were compared.

The Communication Component

The focus of the intervention was not just on transfer of information or improvement in knowledge but equally on communication for behaviour change. The four components of

communication as given in Hubley's framework (1993) formed the basis of the capacity building intervention of this study.

1. ***The Receiver (Audience):*** Formative research helped to understand belief and practices of rural women. Efforts were made to sensitize the AWWs to a woman's constraints within her family and to help these women to utilize the resources available to them through consistent nutrition education during meetings.

2. ***The Communicator (Source or Sender of communication):*** The training focused on effective use of flash cards and interpersonal communication skills. The weakest link in the communication chain is often the 'sender of the message' – in this case – the anganwadi worker. Hence, all through the intervention adequate attention was given towards building her capacity.

3. ***The Message:*** Messages were designed on the basis of formative research so as to target those areas of IYCF that were not optimal. The messages were focused, simple and feasible; were *practice oriented* and *do-able*; had an emotional appeal; addressed 'resistance factors to change' and clarified the doubts of mothers.

4. ***Channel:*** Flash cards were designed and developed to impart NHE messages. They were used during the training workshop as an education tool in role-plays and demonstrations. One set of these flash cards was given to each AWW.

Messages given to the AWWs to improve the quality of implementation of the ICDS services were:

- Standardize the *Rab* recipe encourage the mothers to visit the AWC once every week, teach mothers how to prepare *rab* at home
- Standardize the Supplementary Feeding recipes and their serving sizes, maintain quality and hygiene
- Use growth card as NHE tool to impart knowledge to the mothers regarding growth and development of their child .
- Conduct group meetings with the mothers to impart knowledge regarding desirable CF practices, using effective communication skills.
  (All the above aspects were demonstrated to them in training and were strengthened through role plays)

The messages given to the AWWs and supervisors - to be imparted to mothers - regarding IYCF and child care practices were: exclusively breast feed for the first 6 months; initiate CF at 6 months; improve quantity and frequency of feeding CF; improve the quality of CF (include fruits and vegetables); encourage active feeding; improve environmental and personal hygiene of both mother and child; encourage family support.
Each of the above messages were to be communicated in a focused manner describing the specific behavior required at the household level.

The Communication Process

Aspects considered to make the teaching-learning process during NHEC meetings effective and successful were:

- Flash cards were used to encourage audience to share their experience. Flash cards were held high enough for all to see; messages were read out loud and key points were emphasized. Pictures and messages were pointed out rather than just speaking it out.
- Simple terms in local language were used and questions were asked in between making sure that the audience has understood the message well. The audience was asked to clarify any doubts or concerns about practicing the advice given; and whether they were convinced about the practice shown.

Part B: Process and Impact Evaluation

Process Evaluation of the Intervention and Guided Practice to Improve Performance

Process evaluation was an ongoing phase. It included assessing the feasibility and sustainability of the intervention as regards implementation of the improved NHE service by the AWWs. After the 4-day training workshop, 35 AWWs out of 40 held NHEC meetings at their respective AWCs and imparted nutrition-health education to mothers regarding ICDS services, child feeding and care practices. Continuous unstructured observations were recorded to assess improvement in the communication skills of the AWWs during the enhanced NHEC sessions. Each enhanced NHEC session was critically observed and on the spot guidance was given by the investigator.

The indicators and tools for process evaluation of the intervention are given in Table 5.2

Table 5.2 Indicators and Tools for Process Evaluation

Indicators	Method and Tool	Sample
Evaluation of the NHEC meetings conducted by the AWWs with respect to: ▪ Technical competence ▪ Communication skills ▪ Use of flash cards ▪ Participation of mothers	On site observation in each NHEC meeting followed by feedback and on- the-spot guidance to improve their communication skills	35
Improvement in knowledge of AWWs related to IYCF and ICDS services	Semi Structured Interview	20
Quality of implementation of ICDS services	Direct / spot observations	40

For pre-post assessment of change in knowledge related to ICDS services and IYCF practices, the same 20 AWWs (50% of total) interviewed at baseline were interviewed again. Improvement in quality of functioning of AWCs was assessed through spot observations

Impact Evaluation with a focus on Beneficiaries: The In-depth Study

As mentioned earlier (Phase II, section 3), an in-depth study was carried out which included the pre and post evaluation of the NHEC intervention in two intervened villages, including all the households with children aged 6-35 months who were willing to participate and continued to be present during and after completion of the intervention. For comparison, similar assessment was also made on households with children in the same age group in the control village, where AWWs did not conduct any NHEC session.

Table 5.3 summarizes the quantitative and qualitative indicators of data collection employed for pre- post NHEC data collection.

Table 5.3 Indicators and Tools for Data Collection Pre-Post Intervention

Indicators	Method and Tool	Sample
Change in knowledge of mothers related to ICDS services (Pre vs. Post IG) Improvement in knowledge related to IYCF practices of mothers (pre-post IG vs. CG)	Semi-structured interview	IG=40 IG=40 CG=30
Change in food intake of the children	24-hour dietary recall	IG=38 CG=30
Change in Anthropometric indicators of the children (6-35 months) Weight for age, Height for age & Weight for height	Standard procedures	IG=40 CG=30
Change in hygiene practices; morbidity profile of the children	Semi-structured interview	IG=40 CG=30

RESULTS

PHASE I: Quality of implementation of nutrition related NGO-managed ICDS services for children under 3 years in rural Vadodara – A situational Analysis

Quality of Care Elements Related to ICDS Services

The quality of implementation of nutrition related services was studied based on the framework for QOC for child health and nutrition programs adapted from Kanani 1998. Based on the indicators of QOC, strengths and weaknesses of the selected ICDS services were studied using different observation techniques (Table 5.4).

Table 5.4 Strengths and Weaknesses of ICDS services studied based on Quality of Care Indicators

QOC elements	Indicators of QOC	Strengths	Weakness
ICDS services meet beneficiary needs in a timely manner	▪ Regular availability and utilization of services by beneficiary families	▪ SF* and GM* were regularly available and utilized by beneficiaries	▪ NHE service (group meetings and home visits) and *Rab* supplementation were rarely conducted
Culturally appropriate services seek to reduce gender bias against girls	▪ Rate of utilization of services for girls and boys ▪ Data is desegregated by gender	▪ There was no gender bias in delivery of services by AWWS and in utilization of services by families for girls and boys ▪ Monthly GM and SF data were desegregated by gender	▪ Overall the number of boys was more than girls in all villages
Maintaining balance between short-term and long-term goals of the services	▪ Short term goal- provision of services to all beneficiaries ▪ Long term goal – empowerment of women, effective implementation of NHE service	▪ Food supplements were regularly provided to all beneficiaries ▪ Hospital run by NGO provided good quality health care and treatment of illness	▪ Absence of IEC material for NHE ▪ AWWs made no efforts to empower women by improving child feeding and care behaviours through effective NHE
Adequate competence of functionaries ensured through training	- Timeliness of training - Content of training	▪ All AWWs received 3 months orientation training for implementing ICDS services after joining their jobs	▪ No refresher training was given during the whole job tenure ▪ Absence of IEC material with the NGO for imparting effective training to the functionaries
Implementation	- Implementing services as per guidelines	▪ The NGO tried to implement many of the services as per the government guidelines	▪ Services like NHE meetings, home visits, use of growth chart during GM, maintaining quality and quantity of SF were poorly implemented

Monitoring	- Inclusion of QOC indicators in MIS (records, reports) - Assessing quality of implementation and coverage of the services	▪ The NGO appointed a Coordinator from its own resources to serve as a link between ICDS and NGO	▪ Monitoring was not result oriented; records and registers were monitored only as a routine job function without using its data for program improvement ▪ Coordinator was not adequately equipped to carry out her functions
Adequate coverage of eligible children	▪ All children below 3 years are adequately covered	▪ All eligible children below 3 years were covered and their records were maintained	▪ Many malnourished children living far away from the AWC (enrolled, though on the records) were not followed up regularly and hence they did not avail the necessary ICDS services
Impact: -Awareness of optimal nutrition-health care practices among beneficiaries; -reduction in childhood morbidity and malnutrition rates	▪ Desired level of knowledge and practices as regards - IYCF and child care practices ▪ Adequate nutrient intake of children through complementary foods ▪ Number and duration of episodes of illness		▪ There was poor awareness regarding the optimal IYCF practices; the food and nutrient intake was below recommended allowance ▪ High prevalence of morbidity and poor nutritional status (underweight, stunting and wasting) seen among the children enrolled in ICDS

* SF – Supplementary Feeding, GM – Growth Monitoring

Profile of the Functionaries and their Nutritional Status

A majority of AWWs (75%) were educated upto secondary level (10^{th} std.) or more, and had more than 5 years of work experience (65%). Only one third of AWWs had received training prior to joining their jobs and none of them received refresher training during their job tenure. Further, there was no pre-service training for the supervisors.

Nutritional status of the AWWs was poor. Nearly one fourth (23%) AWWs weighed less than 40 kg. Almost half (40%) of them were undernourished (BMI <18.5) and anemic (55%) (Hb<12 gm/dl).

Knowledge and Perceptions of ICDS Functionaries and Beneficiaries (mothers of children <3 years) Regarding Selected ICDS Services

Selected interview responses of AWWs and mothers related to availability and utilization of ICDS services are presented below (Table 5.5). The responses of the mothers revealed a more dismal profile of ICDS services and its impact than what the AWWs projected. While majority of the AWWs appeared to have satisfactory knowledge related to objectives and benefits of selected ICDS services, majority of the interviewed mothers lacked sufficient knowledge. Nearly half of the mothers were not aware of the main objective of GM and none of the mothers had seen the GC of their child. Few mothers had knowledge regarding purpose of SF service (30%) and more than half (57%) perceived no change in the health status of their children on consuming the snack. Of all the nutrition services, awareness regarding NHE service was the poorest: majority of the women were not aware of the benefit of the service (67%), did not know the topics covered during NHE meetings (60%), and did not find any change in health of their children on availing this service (87%). According to the mothers, none of the AWWs came for home visits. Most of them suggested that AWWs should hold meetings at a feasible time and impart the required messages.

Table 5.5 Knowledge of AWWs and Mothers Regarding ICDS Services

Responses of the AWWs and Mothers	AWWs		Mothers	
	N=20	%	N=53	%
Objectives of GM				
▪ To know whether child is gaining or losing weight	13	65	28	53
▪ Don't know	0	0	22	42
Percentage of women who have not seen the growth chart	-	-	53	100

Responses of the AWWs and Mothers	AWWs		Mothers	
	N=20	%	N=53	%
Objectives of SF				
▪ Child receives SF at AWC which he may not be getting at home, child goes to AWC for SF	16	80	16	30
▪ To improve the nutritional status of the child; for growth and development; child remains healthy	8	40	4	8
▪ Don't know	0	0	18	34
Improvement in health status of children due to SF				
▪ Yes	20	100	16	30
▪ No	0	0	30	57
▪ Don't know	0	0	7	13
Benefits of NHE				
▪ Improvement in health status of the child	12	60	0	0
▪ Improvement in personal hygiene	3	15	2	13
▪ Information regarding care of children	0	0	3	20
▪ Don't know	0	0	10	67
Topics covered under NHE				
▪ Immunization	10	50	0	0
▪ IYCF practices	9	45	1	7
▪ Diet and nutrition	7	35	2	13
▪ Utilization of FS service at AWC	6	30	2	13
▪ Don't know	0	0	9	60
Change in health status of the beneficiaries due to NHE				
▪ Yes	18	90	0	0
▪ No	2	10	13	87

Current Implementation of Selected ICDS Services (Continuous observations and Spot observation)

Continuous unstructured observations were carried out for the entire AWC duration each time to see and document the type of activities as well as sequence and quality of activities. On comparing the daily tasks and time spent on each activity with the *expected job functions* of the AWWs, it was seen that: AWWs had no pre-decided sequence of activities, younger children below 3 years were neglected, standard measurements were not used for cooking SF, very few pregnant and lactating mothers came for SF, no home visits and no NHE meetings were conducted by the AWWs, they spent significant time filling records and registers at home and came late to AWC. On average the AWC functioned only for $2^{1/2}$-3 hours instead of $4^{1/2}$ hours of regular AWC time.

Spot observations were made at all 40 AWCs and they added valuable insights regarding quality of implementation. Routine activities carried out in the AWCs during Anganwadi hours (N=28 spot observations), Hygiene of the AWC and of beneficiary children (N=35), Supplementary Feeding service (N=25), *Rab* Supplementation program (N=25), Growth Monitoring (N=8) and Nutrition Health Education service (N=35) were observed at different

times during the formative stage of research. Majority of the observations corroborated and complemented the continuous unstructured observations, revealing poor quality of functioning. Repeated observations confirmed that Rab supplementation and NHE were absent and mothers were not counseled during GM sessions (non use of growth charts).

Further, observations also revealed that vertical campaigns, conducting surveys and making monthly progress reports took up a significant proportion of AWWs' and supervisors' working hours, leaving them inadequate time for monthly NHE meetings and regular home visits.

Role of the NGO System in ICDS Implementation

Apart from the regular resources provided by the government for functioning of the AWCs, the NGO contributed significantly to improve the QOC in implementation of ICDS services.

- Once a month a medical team visited one AWC to monitor health status of children.
- The NGO contributed from its own funds and provided nutritious SF like maize *muthiya*, *chana* and *khichadi*.
- As a demonstration-cum-supplementation tool, a "*Rab*" (wheat based sweet gruel) supplementation program was implemented once a week in all AWCs for children 7-12 months of age to teach the importance of initiating CF at 6 months.
- The NGO appointed one full time coordinator who functioned as an effective link between the NGO and ICDS system and helped the supervisors in monitoring of all services.

Resources Available to the Mother for Child Care

- The socio-economic resources available to the mothers were inadequate: around two third of the mothers were illiterate or had only primary school education, had poor mean per capita income (70% < Rs.500) and unsatisfactory living conditions (semi-pucca and poorly ventilated houses without toilet facility).
- As regards nutritional status, most of the mothers were undernourished (BMI< 18: 58%). Nearly half of the mothers were married at 16 years of age or even less and more than two third had their first child at 20 years of age or less
- Most of the fathers (30%-90%) when home, offered help to the mothers in child care activities like playing with the child and taking the child to doctor when ill, whereas mothers received little help from their mother in laws (MIL) (15%-44%).

Knowledge and Perceptions of ICDS Functionaries and Beneficiaries (mothers of children <3 years) Regarding IYCF Practices

A comparison of the knowledge of AWWs and mothers related to IYCF and child health care practices (Table 5.6) clearly reveals a wide gap between their knowledge (which was more adequate) compared to that of mothers. This indicates that awareness was not generated among the mothers through proper NHE. It was evident that majority (>70%) of

the AWWs had knowledge as regards active feeding, causes of malnutrition and illness in children and its treatment compared to less than half of the mothers. However, only few mothers (<50%) had correct information related to majority of IYCF practices. for example, they believed that there were no harmful effects of delayed feeding (CF beyond 6 months).

Table 5.6 Perceptions of AWWs and Mothers Regarding IYCF Practices

Responses	Percent Functionaries (N=20)			Percent Beneficiaries (N=115)		
	<50%	50%-70%	>70%	<50%	50%-70%	>70%
Child should be put to breast immediately after birth			✓	✓		
Exclusive breast feeding till 6 months		✓		✓		
Initiating complementary food at 6 months		✓		✓		
Benefits of Complementary feeding						
▪ Child becomes healthy		✓			✓	
▪ Child grows well; physical and mental development takes place		✓		✓		
Best ways to feed the child						
▪ Encourage the child to finish up the meal			✓	✓		
▪ Sit with the child; feed at regular intervals		✓		✓		
Causes of child's illness						
▪ Unhygienic conditions / environment			✓	✓		
▪ Consumes less food / inappropriate food			✓	✓		
Treatment during illness						
▪ Doctors treatment			✓			✓
▪ Home remedies	✓			✓		
Causes of malnutrition						
▪ Food deficiency			✓	✓		
▪ Illness and infection		✓		✓		
▪ Less care by the mother	✓			✓		
If child is ill and receiving CF, then mother should feed her child:						
▪ same as before			✓			✓
▪ less than before	✓			✓		

Morbidity History of the Children

High prevalence of illness was reported in study subjects: more for boys than girls (69% vs. 61%). Common illnesses were cold and cough for which majority of the mothers consulted

the doctor. More than half of the children (57%) experienced morbidity during teething and mothers tied a black thread (*'Dant patti'*) around the child's neck and took him to the faith healer as a cure for teething problems.

Nutritional Status of Children: Diet Intake, Weight and Height

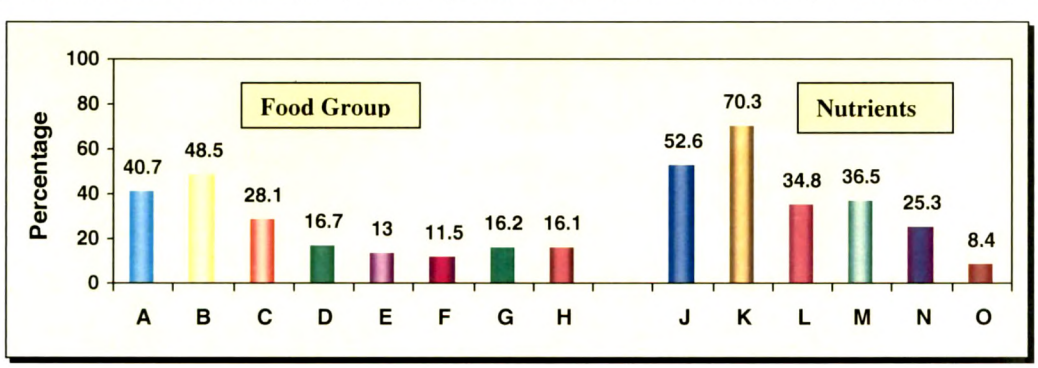
Frequency of Intake of Protective Foods: As reported by the mothers, the intake of fruits (85%) was higher than vegetables (78%) with higher proportion of younger children (6-11 months) consuming fruits and more number of older children (24-35 months) consuming vegetables.

Dietary and Nutrient Intake of Children: The mean food and nutrient intakes from complementary foods were quantitatively assessed through the 24-hour diet recall method on 50% (N=60) of the total sample.

Food intake: Cereal and pulse intake was nearly half (41% and 48% respectively) of the RDA, whereas milk intake was only about one third and that of vegetable, roots–tubers, fruits, sugar and oil was dismal (less than 20% of RDA). Older children (24-35 months) had significantly higher consumption of cereals and pulses than did the younger age groups.

Nutrient Intake: Children could meet only half (53%) of the energy requirements; had better intake of proteins (70%) whereas diet was deficient in micronutrient intake (calcium, iron, vitamin A and C) meeting only 8%-30% of the RDAs. The poor intake of micronutrients was probably due to the absence of fruits and vegetables in their diet. The consumption of various foods and nutrients did not vary significantly among boys and girls though boys had a higher intake than girls.

Figure 5.2 Mean Food Intake (% RDA) and Mean Nutrient Intake (% RDA) of all Children



A: Cereals B: Pulses C: Milk D: Roots E: Vegetables F: Fruits G: Sugar
H: Oil J: Energy K: Proteins L: Iron M: Calcium N: Vit C O: Vit A

Nutritional status

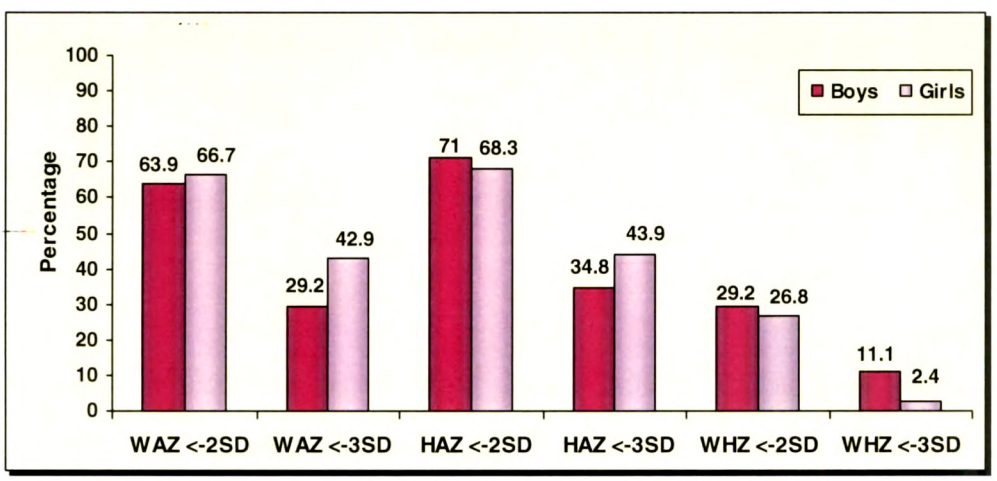
Weight and height indices were compared with WHO standards.

Underweight: Weight-for-Age (WAZ) Z score: About two-third of the children were underweight (WAZ<-2z score), one third were severely underweight (WAZ<-3z score) and the prevalence increased significantly with age ($p<0.05$). Relatively more girls were underweight than boys.

***Stunting: Height-for-Age (HAZ) Z score*:** Almost three fourth (70%) of the children were stunted (HAZ<-2z score) and nearly 40% were severely stunted (HAZ<-3z score). The prevalence and severity of stunting increased significantly as age increased. More boys were stunted whereas higher proportion of girls fell in severe stunting category.

Wasting: Weight-for-Height (WHZ) Z score: Nearly one fourth (28%) children were wasted (WHZ <-2z score). More boys were severely wasted than were the girls.

Figure 5.3 Prevalence of Underweight, Stunting and Wasting among Boys and Girls



Relationship between Child's Calorie Intake and Nutritional Status

Those children whose calorie intake was higher (>50% of RDA) had lower prevalence of underweight and wasting as compared to those who had lower calorie intake (≤50% of RDA); however, the differences were not significant ($p>0.05$).

Influence of Caregiving Behaviours on Child's Nutrient Intake and Nutritional Status

A higher intake of calories was significantly associated with the practice of giving special foods to the child. Other caregiving behaviours did not significantly influence child's nutrient intake; infact most of the caregiving behaviours were unsatisfactory in both the groups.

Behaviours like mother breastfeeds the child same as before when child is ill, mother gives special foods to child and mother encourages the child to eat were associated with better nutritional status of the child. However, none of them showed a significant relationship with weight-for-age ($p>0.05$).

Comparison between Children Regularly Attending AWCs vs. those Irregularly Attending AWCs – Knowledge of mothers on IYCF

Children regularly attending AWCs (REG-AWC, N=36), i.e. "regular in taking SF and attending GM sessions" were compared with those children not regular at AWC (IREG-AWC, N=27).

IYCF practices: Significantly more IREG-AWC mothers had suboptimal knowledge and practices compared to REG-AWC mothers ($p<0.05$) as regards: initiation of CF, feeding fruits and vegetables and knowledge of benefits of feeding CF. Active feeding was poorly practiced in both groups.

Morbidity Profile and Treatment Seeking Behaviours: Prevalence of morbidity was high (REG-AWC: 61% vs. IREG-AWC 70%) with more IREG-AWC mothers perceiving illness to be '*a normal part of child development*'.

Nutrient Intake: Intake of all nutrients (mean percent RDA) of children in REG-AWC group was higher than IREG-AWC group and the micronutrient intake (iron, calcium, vitamin A and vitamin C) was nearly double compared to IREG-AWC.

Prevalence of Underweight and Stunting: The prevalence of underweight was some what higher in REG-AWC (71%) compared to IREG-AWC (63%) and stunting in both the groups was high (REG-AWC: 71% vs. IREG-AWC: 68%). More girls of the IREG-AWC group were severely underweight compared to boys, whereas boys were more stunted than girls.

Does participation in ICDS make a difference in calorie intake and nutritional status?

Inspite of children attending AWC regularly, because of the overall quality of care being sub-optimal in ICDS, the impact on nutritional status of child beneficiaries was negligible. It is also possible that since the more disadvantaged groups usually avail of ICDS services more regularly as compared to the relatively better off families in the same community; these children attending ICDS are hence likely to be in poorer nutritional status. Hence, ICDS may bring them on par with those not attending AWCs, which also is an important contribution.

Prevalence of Undernutrition in Children: Comparison of Primary Vs. the Secondary Data

The primary data collected accurately by the investigator on 115 children from 4 AWCs was compared with the results of the secondary data collected and recorded by the AWWs during growth monitoring, to check its correctness and accuracy over a period of 4 months. Results revealed a considerable difference in the two data sets – where primary data showed underweight almost twice as high as the secondary data (65% vs. 38%) and severe underweight was three times higher (24% vs. 12%). Further, there were major errors in plotting grades of children leading to a high underestimation of malnutrition. This indicated that the NGO system needs to sincerely consider how to train, supervise and ensure that such serious errors in growth monitoring do not occur.

Phase II: Capacity Building Training Intervention Towards Enhanced Implementation of ICDS in the NGO system

Part A: Improving the quality of implementation of nutrition related ICDS services within the NGO System in rural Vadodara

Based on the drawbacks found in the ICDS system during the formative research phase (Phase I), an intervention was planned jointly with the NGO authorities.

The major strategies adopted were:

- Continuous consultation with the NGO
- Capacity building training for knowledge and skill improvement
- Post training follow up; in particular guided practice in the field to enable functionaries to put into practice the skills learnt during training

Since the NGO did not have any written job functions for ICDS functionaries with them, written guidelines were jointly developed for executing the job functions.

NGO Support

To facilitate the execution of these modified job functions, the NGO agreed to:

- Distribute growth chart registers for counseling during GM
- Provide one set each of Flash cards on IYCF to be used during NHEC meetings and home visits
- Provide a set of standard cups and spoons for cooking and serving standard volume of SF.
- Regularize the *rab* supplementation program: ensure that AWWs follow the correct method of *rab* preparation and all of them prepare the optimal quality of *rab*.
- Provide observation checklists to supervisors to monitor the quality of ICDS services.
- Regularize the NHE group meetings and home visits.

To boost the implementation of ICDS services, a system for appreciating the properly functioning AWCs was developed in which it was recommended that all AWC should be graded every month based on a fixed criteria specified for each service by giving points. Those AWCs scoring the highest points would be appreciated during every MPR meeting to motivate other AWWs to function better.

Training of ICDS Staff with Focus on Improving Quality of Implementation of ICDS Services – Pre to Post Training Assessment

A 4-day training program was organized to update the knowledge of the functionaries regarding selected ICDS services and IYCF practices. The functionaries were also oriented to their specific job functions. Before and immediately after the training, AWWs were assessed to check the immediate impact of the NHEC training on their knowledge.

From pre to post training, there was a highly significant improvement with above 70% of AWWs stating the importance of the growth chart, not giving water to the child before 6 months, the right age of initiation of complementary foods (6 months), and the harmful effects of delayed feeding, optimal quantity of CF to be fed to them in one meal and including fruits and vegetables more frequently in the diet, importance of active feeding. Majority (80%) learnt the correct method of *rab* preparation, importance of SF (quantity and quality of SF) and how to maintain proper hygiene of the child while feeding and after defecation.

Part B: Process and Impact Evaluation of the Intervention

Process evaluation of the intervention from HSR perspective

The HSR approach enabled the assessment of changes in Quality of Care (QOC) during implementation of selected nutrition services in NGO system.

AWWs held NHEC meetings at their respective AWCs and counseled mothers regarding ICDS services and child feeding practices. First observations were recorded by the researcher using an observation checklist to assess improvement in communication skills of the AWWs during NHEC sessions. Thereafter all the AWWs were guided to improve their communication skills for the NHEC sessions. At the end of one year of intervention, 35 NHEC meetings were observed and the quality of the enhanced NHEC meetings was assessed on the following criteria: technical competence, communication skills, handling of

visuals and participation of mothers. These criteria were scored (Max score 10 for each criteria)

Results of NHEC sessions observed: Very few meetings were conducted well (5/35 meetings, mean score: 8 out of 10). The positive points were: the AWWs had informed all the mothers in advance; had prepared well on the topics they covered on IYCF; displayed the flash cards properly; spoke in a loud enough and clear voice with confidence. They were able to correctly answer the questions and clarify doubts of the mothers.

Unfortunately, a majority of the AWWs (30/35 meetings observed, mean score: 1.5 out of 10) were seen to be weak in their communication skills. These AWWs did not appear to be interested in conducting the meetings; did not inform the women in advance and did not follow up to ensure attendance; had not prepared the IYCF messages well. Some AWWs saw the flashcards for the first time at the time of meeting, and were not aware of what message each flash card conveyed (nor were they sure of the right sequence). They could not handle the group well; nor could they make the meeting interactive. Women were seen talking amongst themselves and a few women left the meeting half way.

Infrequent NHEC sessions: It was observed that few AWWs were not cooperative and majority of them did not consider conducting NHEC meetings as a routine job function.

Changes in Knowledge of AWWs Regarding Enhanced Implementation of Selected ICDS Services

As part of process evaluation, changes in knowledge of AWWs regarding nutrition related services were determined through semi structured interviews. Direct observations of ongoing ICDS services helped validate interview data.

Growth monitoring: AWWs could correctly recall the messages regarding GM service; majority (85%) of them reported to counsel the mothers using the Growth Chart more regularly and felt that utilization of the service improved.

Supplementary feeding: All AWWs after the intervention believed that there was an improvement in nutritional and health status of children due to SF ($p<0.01$) compared to 65% at baseline; more than half (60-80%) could remember the standard measurements of cooked foods (*khichadi, lapsi, muthiya* and *chana*) and reported that children who regularly consumed SF became 'more intelligent' ($p<0.001$) compared to none at baseline.

***Rab* Supplementation Program:** Implementation of this service remained weak even after the intervention. Compared to none at baseline only few (35%) of the AWWs post intervention could recall the correct measurements and steps in preparation ($p<0.01$) and few of them did not use any specific measurements.

Nutrition Health Education: More AWWs stated that mothers learnt about *rab* preparation and good hygiene practices; utilization of ICDS services increased; majority of them (85%) stated using flash cards during the NHEC meetings.

Spot observations however gave a contrasting picture: only few AWWs used the growth chart as an NHE tool to impart knowledge to mothers; none of the AWWs plotted the weight immediately on the growth chart after the weight measurement; standard cups were used for serving the cooked snack only in half of the AWCs; AWWs did not encourage the children to finish up the whole snack at the AWC; majority of the children ate a little quantity of SF and took the rest home; hygiene of children was poor in half of the AWCs; none of the AWWs were observed using any IEC material; none of the AWWs continued conducting NHE meetings as instructed during the training and no home visits were conducted.

Changes in Knowledge of ICDS Functionaries Regarding IYCF Practices Post Intervention

There was a significant increase in the AWWs' knowledge related to: EBF till 6 months (60%-90%); initiation of CF at 6 months (55%-75%); feeding fruits, sprouts, *dal*-rice water and *rab* to the child; causes of malnutrition. Post intervention nearly half of the AWWs could recall the right messages regarding frequency and quantity of meals for various age groups; benefits of active feeding; feeding CF to the ill child in the same quantity as earlier; and maintaining hygiene of child before feeding and after defication to prevent illness in children.

Hence, it can be concluded that there was a very significant improvement in the knowledge of AWWs regarding child feeding and care practices however, there was not much improvement in the quality of implementation of GM, SF, Rab supplementation and NHE services. Their communication and counseling skills also did not show any substantial improvement.

Support of the NGO and Role of the Supervisors in Monitoring the Quality of Implementation of Enhanced ICDS by AWWs

During the baseline survey it was noted that there were no set guidelines based on which the supervisors could monitor the quality of functioning of ICDS services. Hence, after the training workshop they were given simple observation checklists for monitoring the functioning of the AWWs, for assessing quality of NHEC meetings and a ranking checklist for rating all AWCs. This enabled them to compare the functioning of good AWCs vs. the poorly functioning AWCs.

However, after the intervention it was observed that the supervisors did not use the checklists; and later none of the NGO authorities took charge of monitoring and maintaining the quality of enhanced ICDS services. This revealed a lack of interest from the NGO authorities towards functioning of supervisors and AWCs.

Reasons for not sustaining improved NHEC were many and linked to the interest and time given by the NGO to supervise ICDS functions: the AWWs were loaded with activities other than their routine ICDS functions (vertical campaigns) leading to neglect of one the most important ICDS service including NHE; the supervisors had a tough time convincing the AWWs to hold NHEC meetings; lack of interest among a few AWWs discouraged the supervisors from giving adequate attention to NHEC. Also, during study period the NGO faced disturbance in their ongoing activities due to serious community unrest and protests in some of the field areas of the NGO.

Impact Evaluation of the Intervention on Beneficiaries

Impact of NHEC intervention on the beneficiaries was assessed as regards: knowledge among mothers related to ICDS services and IYCF practices; food intake and nutritional status of children. In the Intervened villages (IG), 60% eligible mothers attended the NHEC meetings.

Changes in knowledge and perceptions of mothers regarding IYCF practices After the Intervention: Intervened (N=40) Vs. Control (N=30)

IYCF practices: There was a significant improvement after the intervention in knowledge of the IG mothers as regards initiation of CF at 6 months (15% pre vs. 45% post) ($p<0.05$), which was not observed in CG (33% pre vs. 40% post). A significantly higher proportion of IG mothers reported feeding fruits, vegetables, *rotla* and *dal*-rice to their children and avoided giving biscuits compared to CG ($p<0.01$). More mothers from IG (13% pre vs. 35%

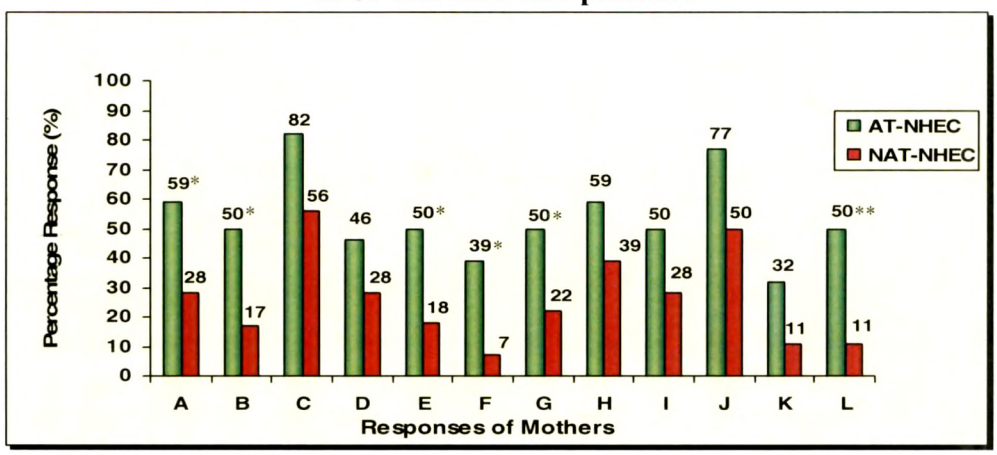
post) reported that the child would become malnourished if there is delayed feeding beyond 6 months ($p<0.05$). Further, IG mothers learnt the importance of active feeding: feed the child at regular intervals (0% pre vs. 38% post) ($p<0.001$), encourage the child to finish up the meal (8% pre vs. 30% post) ($p<0.01$) and make child eat with the family members (38% pre vs. 50% post).

Morbidity and Health related Behaviours: Prevalence of morbidity remained the same pre vs. post intervention (nearly 60%) in both IG and CG. The common ailments reported were cold and cough. More mothers from IG (51%) compared to CG (27%) stated that good nutrition is required for good health and if the child does not eat the required quantity of food s/he will fall ill. Mothers' knowledge significantly improved as regards causes of malnutrition in IG: common reasons stated were '*Lack of care by the mother or caregiver*', '*food deficiency*' and '*morbidity*'. Post intervention, all the IG mothers reported to send their children to avail GM, SF, Pre-school education and immunization. However, none of the mothers from both IG & CG availed NHE service. *Hence, even after intervention NHE remained the most neglected service.*

Hygiene practices: A significantly higher proportion of IG reported to wash their child's hands with soap and water after the child defecates; before and after feeding and feeding freshly cooked and covered food to their children.

Overall, the intervention group showed remarkable improvement in the perceptions and behaviours of mothers related to IYCF as compared to control. Mothers in the intervened group were able to recall many of the IYCF messages taught to them during the NHEC meetings. To compare their responses with those who did not attend NHEC sessions, the intervened group was further divided into two subgroups: Attended NHEC (AT-NHEC) and Not-attended NHEC (NAT-NHEC) and responses were compared within these two groups as well. Among the IG mothers the positive change in knowledge was even better in the AT-NHEC mothers than in NAT-NHEC mothers. This improvement in knowledge can be further enhanced if regular NHEC meetings are held by trained AWWs and effective home visits take place.

Figure 5.4 Changes in Perceptions of Mothers (AT-NHEC vs. NAT-NHEC) Regarding IYCF and child care practices



* p< 0.05 , ** p < 0.01

A Initiation of CF at 6 months
B Harmful effect of delayed feeding: child will become Malnourished
C Active feeding behaviour: sit with the child while he / she is eating
D Active feeding behaviour: feed the child at regular intervals
E Benefit of feeding fruits: child gets nutrition
F Benefit of feeding vegetables: child becomes healthy
G Observation on Hygiene: child in clean clothes
H Observation on Hygiene: hands clean
I Observation on Hygiene: hair clean
J Observation on Hygiene: face clean
K Hygiene related to child feeding: mother washes her own and child's hands with soap and water
L Perceived cause of Malnutrition: less care taken by the mother / caregiver

Impact on Food intake and Nutritional Status (Height and Weight) of children (6-35 months): Intervened Vs. Control villages

Fruit and Vegetable Intake (Interview responses)

IG vs. CG: A significant increase in the fruit (pre: 60% vs. post: 93%) and vegetable (pre: 48% vs. post: 80%) intake of children ($p<0.001$) was reported by IG mothers with no change in CG. Significantly more mothers from the IG stated that '*child gets nutrition*', '*gains weight*', '*blood and bones become healthy*' on eating fruits. Commonly fed fruits were banana and apple in both the groups. In IG the frequency of feeding vegetables increased from 2-4 times a week post intervention whereas it decreased in CG.

AT-NHEC vs. NAT-NHEC: More mothers from AT-NHEC group reported to give a variety of fruits and vegetables to their children compared to NAT-NHEC group. Further, significantly more AT-NHEC mothers believed that '*child gets nutrition*', '*remains healthy*' and '*gains weight*' on eating fruits and vegetables as compared to other group.

Change in Food and Nutrient Intake of Children (24-hour dietary recall)

Food Intake: In IG, there was a significant rise in the intake of energy giving foods like cereals, pulses, sugar and oil in both boys and girls, meeting >50% of the RDA for cereals and >75% of the RDA for pulses and >30% for sugar and oil. However, intake of protective foods i.e. vegetables improved but yet they could only meet 25%-30% of the RDAs. In case of CG, the intake of none of the foods showed a significant increase in both boys and girls after the intervention with roots-tubers, vegetables and fruits meeting hardly 10% of the RDAs.

Age wise differences: There was a 2-3 fold increase in intake of staples as well as protective foods in both the age groups (6-23 months) and (24-35 months) in IG. The older children showed a marked increase in intake of cereals, pulses, sugar, oil and vegetables than the younger ones in IG, whereas the younger children showed a higher intake of fruits and milk. In CG, either there was a marginal increase in intake (cereals, sugar, oil and milk) or a deterioration in intake (fruits and vegetables) in children of both age groups.

Nutrient Intake

There was significant rise in the nutrient intake of IG children and the RDAs met were higher than the CG children. Despite this however, for most of the nutrients, the intake remained around 40%-60% of RDA and remained dismally low for vitamin A (12%). The scenario was worse in CG with only a marginal rise in most of the nutrients and a decline in energy intake.

Sex wise differences: In case of IG boys, the mean percent RDA of all nutrients nearly doubled with a significant rise in calcium intake ($p<0.05$); whereas in CG, all nutrients showed a decline except iron and vitamin C. In case of girls, post intervention there was a significant improvement in calcium ($p<0.01$) and vitamin A ($p<0.05$) intake in IG and only protein intake ($p<0.05$) in CG.

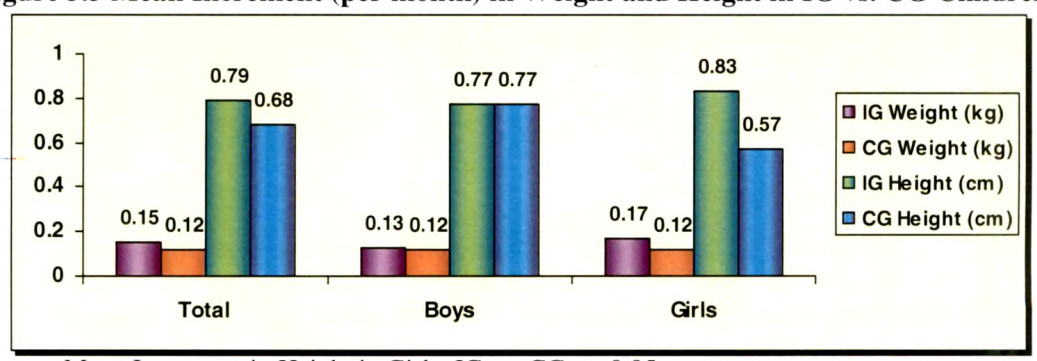
Age wise differences: The mean % RDA of all nutrients of IG children in 6-23 months and 24-35 months age group increased to more than double after the intervention. However, in case of CG children in both the age groups the mean % RDA of all nutrients almost remained the same after the intervention.

Impact of the NHEC Intervention on Nutritional Status of Children with Regard to Underweight, Stunting and Wasting

Mean Height and Weight: The mean height after the intervention in IG was significantly higher than non intervened CG ($p<0.01$). In IG, mean height was 79.2 cm whereas in CG the mean height was 75.1 cm. Within the group, the differences between boys and girls were not significant. The mean weight in IG was 9.47 kg whereas in CG the mean weight was 8.63 kg and within the group the differences between boys and girls were not significant.

Mean increment in Height and Weight: The mean increment in height in IG was higher than CG, however the difference was not significant. Further, within the IG, the increment in girls was higher than in boys whereas, in CG boys showed higher increment than their counterparts; indicating gender sensitization in IG. Within the IG, the weight increment was higher than CG, however the difference was not significant. Further, within IG the increment in girls was significantly higher than in boys ($p<0.05$), whereas in CG the increment was similar in both boys and girls.

Figure 5.5 Mean Increment (per month) in Weight and Height in IG vs. CG Children

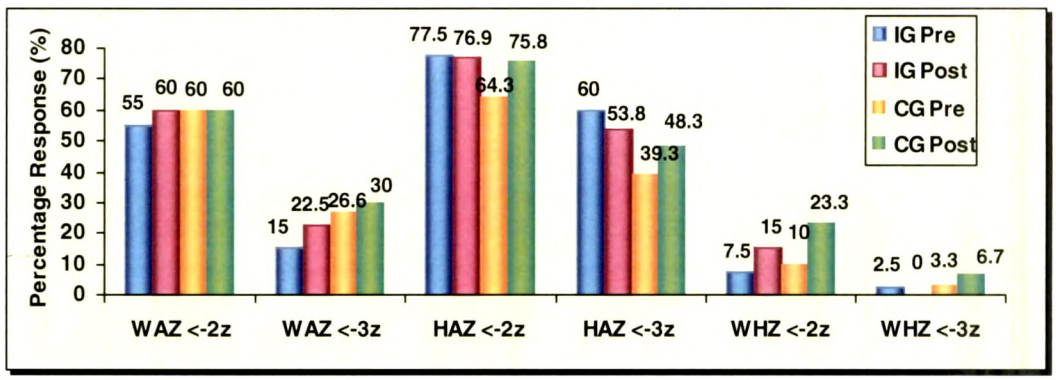


Mean Increment in Height in Girls: IG vs. CG: $p<0.05$
All other values Non Significant

Change in Nutritional Status of Children: Underweight, Stunting and Wasting

Underweight: The prevalence of underweight in both IG and CG after the intervention remained the same (IG: 60% & CG: 60%) as in pre intervention. ***Stunting:*** After the intervention the prevalence of stunting increased in CG with no change in IG children. Further, the proportion of severely stunted (<-3z score category) IG children decreased (60% to 54%), whereas the proportion increased in CG (39% to 48%). ***Wasting:*** The prevalence of wasting increased in both IG and CG after the intervention. However, after NHEC intervention proportion of severe wasting decreased in IG and further increased in CG children.

Figure 5.6 Change in Nutritional Status of Boys and Girls in IG vs. CG



Note: All pre and post intervention values in both IG vs. CG and between sexes within each group are non significant

This indicated that with NHEC intervention though there was very little or no improvement in IG children, their nutritional status did not further deteriorate. Whereas, in case of CG proportion of underweight, stunted and wasted children increased after the intervention period. Further, IG seemed to benefit more in terms of height gain rather than weight gain.

Views of Beneficiaries (Intervened group mothers (N=40)) Regarding Changes in Availability and Utilization of ICDS Services After the Intervention

For this section unfortunately control data is not available because at the time of collecting this data (which was the last segment of data collected), community disturbances and political unrest took place and the investigator was advised not to enter the villages. Hence, data on perceptions of ICDS services in control villages post intervention is not available.

There was very little change in the knowledge of IG mothers regarding the ***GM service***- most of them continued to remain ignorant of the benefits of GM. A majority (85%) reported that the AWW informed about the weight of the child and only 20% mothers said that AWWs advised them on what home care is required. Even after the intervention, 90% of the mothers had not seen the growth chart.

SF service- A majority could state the benefits of SF; about one fourth reported that '*children get nutrition*' and '*remain healthy*' on consuming AWC snack ($p<0.05$); most of the mothers became aware of the right quantity (1cup) of snack served to their children; on-site feeding of snack improved ($p<0.05$), and the portion taken home was more likely to be eaten by the child himself/herself ($p<0.01$). Also more mothers felt that their child eats more at the AWC and has gained weight.

Rab supplementation: there was no improvement in the implementation of *rab* preparation as a demonstration tool; as a majority (70%) were not aware about the program even post intervention.

NHE service: a significantly higher proportion (50%) of the mothers reported to attend NHE meetings. Of those mothers who attended NHE meeting, nearly half could recall that messages were given related to complementary feeding and child care ($p<0.01$). Further, more than half (64%) of the mothers found no difference in the health status of their children due to this service ($p<0.01$), which is not surprising as sustained and effective NHE is required before nutritional status improvement can be expected.

CONCLUSIONS

Our belief that NGOs implement services satisfactorily may not always be true. The results of Phase I clearly indicate that the NGO management did not give adequate attention to ensure that the ICDS functionaries (AWWs and Supervisors) properly carried out the ICDS services. In particular, quality of few nutrition related services was weak: growth charts were not used to counsel mothers during growth monitoring; no standard measurements were used to cook and serve the SF to beneficiaries; NHE meetings and home visits were not conducted. Further, AWWs lacked sufficient communication skills to counsel mothers of children regarding correct IYCF practices also monitoring and supervision by supervisors was inadequate. Though the NGO rendered extra support through good infrastructure, *rab* supplementation program for 7-12 month children and medical facilities through a hospital, undernutrition among child beneficiaries was high. There was not much difference among children attending and not attending AWCs as regards morbidity and undernutrition. Further, knowledge and practices of majority of the rural mothers regarding IYCF were unsatisfactory.

Training: Training related interventions frequently take place to improve skills of ICDS functionaries. However, rarely is follow up done to see whether their enhanced capacities are implemented at field level and what are the difficulties involved when skilled learnt or improved in training are put into practice at field level. From results of Phase II it can be concluded that enhanced training imparted to build communication skills of AWWs led to significant improvement in their knowledge related to optimal IYCF practices. However, continuous on-site feedback and guided practice was necessary to help the AWWs improve their skills. It was only with continuous supportive supervision that the NHE service was

regularly implemented throughout the intervention period. However, once on their own, the NGO authorities did not ensure sustained momentum of the improved system of functioning.[1] Despite the weaknesses seen, impact evaluation soon after the intervention reported a significant improvement in the knowledge of the intervened mothers (IG) compared to the control group mothers (CG) related to IYCF practices. Among the IG mothers, those who attended the NHEC sessions reported even further improvement in knowledge. The children of NHEC-attended mothers further reported higher intake of food and nutrients compared to their counterparts- mothers not regular in NHEC sessions.

One reason why nutritional status of children showed little improvement even in intervened group could be persistent high prevalence of morbidity among IG children. Overall, the study results indicate that trained and motivated functionaries can bring about major improvement among mothers and a simple monitoring system can be a valuable tool to track progress. The utilization of services by the beneficiaries can further improve and the impact can be further enhanced if NGOs actively give support and take more interest in quality of ICDS that they are managing. It can also be concluded that Health Systems Research framework offers the tools to comprehensively study systems in which programs operate; in this case, HSR was valuable to study ICDS in an NGO system.

Recent initiatives by the NGO to strengthen ICDS

An attempt was made to know the current implementation of ICDS services by the NGO. During a meeting with the NGO authorities, the ICDS coordinator reported several recent initiatives taken by the NGO to strengthen implementation of ICDS such as:

- ★ Increased the manpower for effective monitoring and supervision (project leader, project officer, consultant and coordinator)
- ★ Improved quality of home visits, conduct *Vali* meetings and *Mahila Mandal* meetings to increase the utilization of ICDS services
- ★ Mothers are demonstrated recipes made from Balbhog during meetings to increase the consumption of Balbhog by children below 3 years.
- ★ Using observation checklist prepared by the NGO for effective monitoring and implementation of ICDS services.

It is hoped that over time with adequate attention and closer supervision by the NGO both quality and impact of ICDS will further improve.

[1] However, a revisit after the research data was compiled and analyzed, revealed that the NGO subsequently took some concrete steps to strengthen ICDS which are given in the next section.

Unique Contributions of Present Research

→ **New insights regarding various dimensions of management of ICDS by an NGO**

- ★ The present study has increased our understanding in using the Health Systems Research methodology as regards NGO-managed ICDS.
- ★ The HSR methodology helped to study the Quality of Care elements of selected nutrition related ICDS services.
- ★ Applying the principle of Triangulation of Research methods i.e. using both observations and interview methods - provided authentic information on quality of implementation of services and actual utilization of services by beneficiaries
- ★ The value of the direct observation method was clearly evident as this method helped to compare and validate the data obtained through interviews of ICDS functionaries and beneficiaries.
- ★ In particular, the well known linkages of reported data through interviews – i.e. getting socially desirable answers which may not be true – was largely overcome by the observation method which reflected the field reality far more effectively than did the interview data.
- ★ Information from multiple sources also helped to plan and design the intervention program.
- ★ HSR methodology has been implemented to assess many health programs; however, few research studies have applied it to study the ICDS functioning and nutrition services. Especially, exploring the contributions and constraints of the NGO in managing ICDS was uniquely studied here.

→ **New information regarding selected aspects of IYCF practices in this region, not adequately documented so far. For instance:**

- ★ This study explored Caregiving behaviours and Resources for Care among poor rural families in Gujarat.
- ★ Meaningful data regarding association of Caregiving behaviours with food intake and child's nutritional status has been obtained.
- ★ Comparative data on the wide differences in knowledge of IYCF between AWWs and mothers has also been obtained.

→ **The present research attempted to improve the poor IYCF practices of the mothers by enhancing the quality of NHE service through continuous guided practice on communication skills of AWWs in the field.**

★ This experience gave us information regarding the 'how to' of effective communication in the area of behaviour change for nutrition in the context of NGO managed ICDS.

Recommendations for Future Research: Strengthening ICDS in NGO system

NGOs managing ICDS, including the one in the present study need to seriously consider implementing measures which will improve quality and impact of ICDS, in particular the nutrition services; since ICDS is the only major national program devoted to malnutrition reduction in our country. The Health Systems Research approach adopted in this study helps to comprehensively view a system and find out gaps in implementation of services. In this context, the following recommendations emerge, which NGO authorities may take into account for strengthening ICDS.

1. Ensuring that ICDS meet short term and long term community needs.

The NGO should strive that ICDS meets nutrition and health needs of the beneficiary families and community as per its objectives - especially empowering beneficiary households through NHE: a function NGOs can carry out more effectively than government systems.

2. Paying attention to Capacity building of services providers.

Far more than government, NGOs can change mindsets of service providers which is critical for effective functioning. Being close to grassroots situation, NGOs should pass on their quality of empathy and understanding to the AWWs and supervisor. Through training they should not just improve knowledge and skills, but also inculcate in ICDS functionaries, an attitude of understanding respect towards rural households, and gender sensitivity.

3. Providing an enabling environment for effective functioning

   3a) Ensuring job clarity: A major lacunae in government system is that workers often do not know what they are supposed to do. NGOs may make efforts that ICDS AWWs know their job roles and also ANMs are aware of the health system.

   3b) Enforcing effective supervision: Government department often do not delineate supervisory role clearly. NGOs should not only help supervisors to understand clearly their job functions, but also provide training on effective supervision. Further, they should also provide tools such as supervisor's checklists. It is imperative that supervisors provide on filed guidance to AWWs to improve their work organization, counseling and communication skills.

3c) Other aspects of an enabling environment – which NGOs could provide (as was done by this NGO effectively) are health care to ICDS beneficiaries for control of infections and facilities to increase their mobility.

4. Practice integration of services at field level.

NGOs need to ensure that true integration of services at field level becomes a reality. As the name of ICDS suggests, it is an integrated program but often not executed that way. With the flexibility they have, NGOs are in a position to ensure that ICDS is implemented in truly integrated manner; with balanced attention given to all important services.

5. Making ICDS on par with other services.

This is particularly important as NGOs do have many other projects and community based services in addition to handling ICDS. Hence they need to balance their attention and resources to meet varied demands.

Recommendations for NGOs managing ICDS

1. Since many cities in Gujarat have NGOs managing ICDS, using HSR methodology – including use of QR-PR methods – may be explored to study ICDS managed by urban NGOs.

2. Behaviour Change Communication research studies may be undertaken to document factors which enhance BCC in ICDS, especially how to build and sustain capacities of AWWs and supervisors to effectively carry out NHE with community participation.

3. NGOs implementing ICDS can carry out operations research study to identify operational problems in ICDS and how they can respond to solve these problems, especially how to become result oriented rather than activity oriented.

4. Research comparing government managed ICDS vs. NGO managed ICDS in order to learn valuable lessons and best practices may be carried out using HSR methodology or other research frameworks.

5. In the final analysis, NGOs need to ask themselves: Are they truly using their strengths to manage well a government program?

"I shall pass through this world but once. Any good thing therefore that I can do, or any kindness that I can show to any human being, let me do it now. Let me not defer it or neglect it, for I shall not pass this way again" Etienne de Grellet