EVALUATION OF PROJECT MANTHAN FOR STRENGTHENING, ICDS IN HIGH-PRIORITY DISTRICT OF ASSAM

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ABSTRACT

BACKGROUND

IMR, U5MR and MMR in Assam, highest in the country. Nutrition plays important role in physical, mental and social development of child. UNICEF and North East Diocesan Social Forum (NEDSF) partnering on community-based innovation for child growth, development and nutrition titled project 'Manthan', which involved strengthening of AWCs (FLS, field learning sites) delivering ICDS services.

The aim of the study is to evaluate the effect of project Manthan and to assess the status of ICDS services in High-Priority District (HPD) of Assam.

MATERIALS AND METHODS

Two districts selected randomly from 6 high-priority districts. To compare effect of intervention, 30 FLS-AWC were assessed along with 30 nearby AWC and 30 AWC situated in a distant location (non-intervention). In each site, facility assessment (90) along with knowledge assessment of AWW (90) and beneficiaries (mothers of children under 2 years, pregnant women (180 each) was done and compared between FLS, nearby and non-intervention AWC. Predesigned, pretested format used. Qualitative assessment was done by observation method along with photographic evidence.

RESULTS

Functional weighing machine available in 65.6% (59) AWC, while MUAC tape available only in 2.2% (2) AWCs. Twenty percent AWW (18) having MUAC tape amongst FLS (p=0.018). Height chart available in 34.4% (31), while safe water in 42.2% (38) AWCs. Availability of soap, significantly different in FLS and nearby AWC compared to distant/non-intervention AWCs (p=0.016). Growth monitoring, significantly better in FLS and nearby AWCs (p=0.058). Significant improvement in knowledge seen amongst workers working in FLS, nearby AWW compared to non-intervention AWWs (p<0.001). Similarly, knowledge about care during pregnancy (p=0.009), key points of complementary feeding (p=0.003) was also significantly high amongst FLS.

CONCLUSION

Development of FLS was found effective. Though, overall, there was gap in facility, knowledge and utilisation of services. There is a need to further strengthen ICDS system.

KEYWORDS

ICDS Strengthening, Field Learning Sites (FLS), Nutrition Intervention, Assam.

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BACKGROUND

Undernutrition contributes to 45% deaths of children under five years of age.[1] Nutrition plays an important role in physical, mental and social development of a child, but prevalence of under nutrition is very high in Assam. Almost half of the children under five years (40.6%) were stunted (chronically malnourished), 22.0%were underweight and about 9.7% were wasted, while severe wasting was prevalent in 2.7% of children (6 months-5 years).[2] Anaemia among children in the age group 6-35 months was around 35.7% and 46.0% women in the age group 15-49 years were anaemic.[3]

Optimal infant and young child feeding practices help ensure young children have the best possible start to life.[4] In Assam, Rapid Survey of Children (RSOC) 2013 shows 72.9% of infants were initiated breastfeeding within one hour of birth, 64.7% having exclusive breastfeeding for six months, 76% having timely introduction of complementary foods, only 25.6% fed minimum number of times and 17.8%

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are fed with minimum dietary diversity as per recommendations.[2]

Integrated Child Development Services (ICDS) scheme, one of the flagship program of Government of India providing a package of six services comprising of Supplementary Nutrition Program (SNP), immunisation, health check-up, referral services, preschool non-formal education and nutrition and health education to address health, nutrition, early learning and development need of young children, pregnant women and nursing mother. Rapid universalisation of ICDS, however, resulted into programmatic, institutional and management gaps that needed redressal and tried under 12th five year plan, attempt made to revamp ICDS as a 'vibrant Early Care and Development (ECD) centre' to become the first village outpost for health, nutrition and early learning-minimum six hours of working, focus on age below 3 years, care and nutrition counselling particularly for mothers with children aged less than 3 years, identification and referral of severe and moderate underweight through community-based interventions Sneha Shivirs, implementation of innovations, strengthening governance including PRIs, partnership with civil society and introduced in mission mode.[5]

But, main concern is real universalisation. As Supplementary Nutrition Program (SNP) coverage and quality is suboptimal with weak monitoring and supervision and convergence is a challenge, though not many scientific evidence available in north east India, but available studies and reports relating to nutrition in tea communities show high prevalence of under nutrition in young children, adolescent girls and mothers.[6-8] As ICDS system has potential to address these issues, so this study was undertaken to evaluate the effect of project Manthan, which was started to strengthen ICDS system and to assess the status of ICDS services in high-priority districts of Assam.

MATERIALS AND METHODS

Settings

Assam, the largest state of North East India having six High-Priority Districts (HPDs) based on call to action. North East Diocesan Social Forum (NEDSF) undertook Manthan Project with UNICEF support in two high-priority districts- Nagaon and Golaghat selected randomly using computerised random numbers. Under the project, thirty selected Anganwadi Centers (AWCs) were developed into Field Learning Sites (FLS) by capacity building of service providers (Anganwadi Worker (AWW) and helper) and regular supportive supervision by the NGO. Field Learning Sites (FLS) were used for training of nearby AWCs. After one year of intervention by the NGO, this study was undertaken.

Study Design

This cross-sectional study was conducted to compare the effect of strengthening of AWCs on delivery of ICDS services. FLS-AWC were compared with nearby-AWC and non-intervention AWC. In each category, 30 centres were assessed.

In each selected AWCs, assessment was done for the AWC, Service Provider (AWW) and beneficiaries (pregnant women and mothers of children under 2 years) using a predesigned and pretested proforma. Qualitative assessment was done by observation method along with photographic evidence.

Sample Size

For comparing knowledge level of beneficiaries, there are no similar studies in the past. So, assuming 50% prevalence for obtaining maximum sample size and using 15% error and 95% confidence interval, sample size needed from each group is 86, which is rounded up to 90.[9]

Ethical Consideration

Ethical clearance obtained from Institutional Ethical Committee and permission was obtained from State and District level ICDS officials. Written informed consent was taken from beneficiaries before interview and from service providers before collecting photographic evidences.

Statistical Analysis

Descriptive statistics was used to describe the factors related to availability of different facility in different AWCs. Pearson's Chi-square test was used to compare different factors of FLS AWC, nearby AWC and non-intervention AWC. SPSS V-14.0 was used to analyse the data.

RESULTS

Facilities Available in Different Anganwadi Centres-Overall, i.e. FLS, Nearby AWC and Non-Intervention AWCs.

Functional weighing machine was available in 65.6% (59) AWC, while for measurement of Mid Upper Arm Circumference (MUAC) tape was available only in 2.2% (2) AWCs, which is significantly higher amongst FLS (p=0.018). Height chart was available in 34.4% (31) AWCs. Safe water source was available in 42.2% (38). Availability of soap was significantly better in FLS and nearby AWC compared to distant/non-intervention AWCs (p=0.016). Sanitary toilet was available only in 35.6% (32) AWCs and kitchen for cooking hot cooked meal was kept clean only in 48.9% (44). Stock register was available in 90% (81) AWCs, while it was up-to-date only in 47.8% (43) AWCs. Similarly, distribution register was available in 95.6% (86), while only 53.3% (48) was up-to-date. Growth monitoring register was available in 98.9% (89) and only 66.7% (60) were up-to-date. Growth monitoring was significantly better in FLS and nearby AWCs (p=0.058). Family survey was available in 95.6% and updated in 76.7%. Referral register was available in 80.0% (72), 42.2% (38) were up-to-date position. Similarly, SNP register was available in 96.7% (87), while only 61.1% (55) were updated. Immunisation register was available in 97.8% (88), but updated only in 51.1% (46) centres (Table 1).

Knowledge of Anganwadi Workers Regarding Nutrition Interventions

Knowledge that the first 1000 days of human life is an important period for nutrition intervention was known to only 58.9% (53), which is significantly higher in FLS and AWWs working in nearby AWCs (p<0.001). There was a significant difference in knowledge amongst workers working in FLS, nearby AWW compared to non-intervention AWWs (p<0.001). Similarly, FLS and nearby AWW were more aware that there is rapid physical growth and development during this phase of life (p<0.001). Knowledge regarding nutritional vulnerability during this phase was very poor 14.4%[10] and not significantly different amongst three groups (p=0.209). Information that under nutrition at this age (1000 days) affects child's growth, brain development, intelligence, educability and productivity was known to only 23.3%, which is significantly better in intervention groups (p=0.003). Knowledge about the fact that under nutrition during 1000 days causes irreversible loss in growth and development of children, but is preventable was present in 41.1% (37) workers. Awareness about "improving nutrition of women during pregnancy is important for helping in sufficient weight gain" was significantly high in intervention groups (p=0.004), though knowledge regarding reduction of risk of anaemia (p=0.171), risk of premature delivery (p=0.081) and child born healthy with normal weight (p=0.200) was not significantly different. There is significant difference in knowledge about necessity of intake of extra food and iodised salt intake though other three key messages have not shown any significant improvement. Majority knew that newborn baby should be breastfed within half an hour of birth 87 (96.7%), no prelacteals to be given to baby 85 (94.4%), exclusive breastfeeding for 6 months 86 (95.6%) and introduction of complimentary feeding of baby at six months of age 88 (97.8%). Knowledge about key points of complimentary feeding showed significant difference about quantity (p=0.001) and consistency (p<0.001) in intervention group. Significant improvement is seen about early initiation of breastfeeding (p=0.001), exclusive breastfeeding till six months (p=0.014) and timely complementary feeding (p=0.020) regarding Infant and Young Child Feeding (IYCF) practices (Table 2).

Knowledge of Anganwadi Workers about Different Services

There is significant difference in knowledge regarding recording of health and nutrition services and care given to mother and children during pregnancy upto 3 years (p=0.002) and use of MCP (mother child protection) card as a tool to counsel mothers (p=0.010) in FLS workers. Significant improvement in knowledge of AWW working in FLS and nearby centres was also recorded for knowledge about introduction of complementary feeding at 6 months (p=0.040), plotting growth chart in MCP card (p<0.001), holding group counselling session on IYCF and maternal nutrition held at AWC (p<0.001), practical demonstration on complementary feeding at AWC (p<0.001), holding 'Sneha Shivirs' at AWC(p=0.001), holding 'Mantri-Amrut-Ahar' (to make community aware about healthy food to pregnant lady) at AWC (p=0.001) holding 'Prothom-Ahar' (to provide complimentary feeding at right age) at AWC (p=0.013). Organising screening camps for identifying child with Severe Acute Malnutrition (SAM) (P=0.044) and follow up (p=0.010) was also significantly higher in FLS. Participation in Village Health and Nutrition Day (VHND) celebration was universal in all FSL and nearby AWCs with an overall participation of 93.3% (84) (Table 3).

Community Members' Interview- Pregnant Women

Pregnant women's knowledge about care during pregnancy- 138 (54.8%) knows about importance of consuming more and variety of foods, while 103 (40.9%) knows that 2 hours rest during daytime is necessary, while only 75 (29.8%) knows about SNP. Knowledge regarding IFA consumption (p=0.009) was significantly higher in FLS and nearby AWCs compared to distant AWCs. Only 48.4% (122) know about exclusive breastfeeding and 50.4% (127) aware about introduction of complimentary feeding at six months and both indicators are not showing significant difference in FLS, nearby centres and non-intervention AWCs. Knowledge about complimentary feeding showed variable response. Only 35 (13.9%) could respond correctly about frequency, which is significantly higher in FLS and nearby AWCs compared to non-intervention AWCs (p=0.003). Significant improvement was also observed regarding knowledge about consistency (p=0.048), though overall only 24.6% (62) pregnant women know about it. Similarly, knowledge regarding active feeding (p=0.015) and clean and hygienic feeding (p=0.001) was significantly better in intervention groups though overall proportion was only 22.6% (57) and 27% (68). MCP card was present with 75.4% (190) beneficiaries, while record of health and nutrition services was found only in 27.8% (70), significantly better in intervention groups (p=0.023). Knowledge regarding growth monitoring of child was very low (47, 18.7%). Similarly, only 38 pregnant women, i.e. 15.1% know that red/orange colour of the growth chart indicates child is very weak, only 33 (13.1%) only know about yellow colour of the growth chart indicates child is weak and 42 (16.7%) know that green colour of growth chart indicates child is normal in growth, though all three indicators showed significant improvement (p=0.009, p=0.004 and p=0.008, respectively) in intervention groups. Complementary feeding demonstration session held by AWW in village AWC was also low (39, 15.5%) though significant improvement was seen in intervention groups (p<0.001). Beneficiaries received counselling individual/group on breastfeeding and maternal nutrition during VHND in AWC was only 21.8% (55), while weight recording was done in 42.1% (106), significantly higher in intervention group (p <0.001) (Table 4).

Community Members Interview- Mother of Child below 2 Years

Importance of consuming more and variety of food during pregnancy was known to 63.3% (169) while only 98(36.7%) knows about necessity of taking 2 hours rest. SNP utilised

by 30.7% (82) women, significantly better in FLS (P=0.01). Only 34 (12.7%) consumed IFA 100 tablet during pregnancy, but significantly better in FLS (P=0.013). Knowledge regarding iodised salt consumption was very low (10, 3.7%). Early initiation of breastfeeding was known to 157 (62.3%) women, while 113 (44.8%) know that no prelacteal should be given. Overall knowledge regarding exclusive breastfeeding for 6 months was present in 122 (48.4%) and introduction of complementary feeding of baby at six months was known to 127 (50.4%). Knowledge about complimentary feeding showed significant improvement regarding frequency (p=0.006), quantity (p<0.001), consistency (p=0.001), active feeding (p<0.001) and clean and hygienic feeding (p<0.001) in intervention group. MCP card was present in 211 (79%), while only 88 (33%) had record of services significantly better (p=0.029) in intervention group. Information regarding taking care during pregnancy and up to 2 years was very low as only 17 (6.4%) could respond properly and no significant difference was observed in intervention group (p=0.102). Overall knowledge about importance growth monitoring was very poor (40, 15%) and use of MCP card as self-monitoring tool was very poor (13, 4.9%). Only a quarter of beneficiaries know about importance of growth monitoring, indication of different colour to child health status, while 148 (55.4%) knows that child weight need to be plotted in growth monitoring register, significantly better in intervention group (p<0.001). Similarly, weight recording in MCP card is also significantly better in intervention group (p<0.001). Demonstration of complimentary feeding held only to 19.5% (52) beneficiaries, also significantly better in intervention group (p<0.001). Individual/group counselling on breastfeeding and maternal nutrition during VHND in AWC received by only 27.3% (73), though significantly better in intervention group (p=0.004) and that regarding complimentary feeding was 110 (41.2%) with no significant difference (p=0.377) (Table 5).

Facilities Available	Overall Total (n=90)		FLS AWC (n=30)		Nearby AWC (n=30)		Non-Intervention AWC (n=30)		Chi-Square	P-value
	No.	%	No.	%	No.	%	No.	%		
Functional weight machine	59	65.6	22	73.3	17	56.7	20	66.7	1.87	0.393
MUAC tape	2	2.2	1	3.3	1	3.3	0	0.0	--	
Height chart available	31	34.4	11	36.7	12	40.0	8	26.7	1.279	0.527
Safe water source	38	42.2	17	56.7	12	40.0	9	30.0	4.464	0.107
Soap for hand washing	45	50.0	16	53.3	20	66.7	9	30.0	8.267	0.016
Sanitary toilet	32	35.6	11	36.7	12	40.0	9	30.0	0.679	0.712
Kitchen clean	44	48.9	16	53.3	12	40.0	16	53.3	1.423	0.491
Playing materials	71	78.9	24	80.0	27	90.0	20	66.7	4.937	0.085
Stock register available	81	90.0	26	86.7	28	93.3	27	90.0	0.797	0.905
Stock register updated	43	47.8	12	40.0	18	60.0	13	43.3	2.761	0.251
Distribution register available	86	95.6	29	96.7	29	96.7	28	93.3	0.69	1
Distribution register updated	48	53.3	15	50.0	18	60.0	15	50.0	0.804	0.669
Growth monitoring register available	89	98.9	30	100.0	30	100.0	29	96.7	--	
Growth monitoring register updated	60	66.7	23	76.7	22	73.3	15	50.0	5.7	0.058
Family survey register available	86	95.6	28	93.3	30	100.0	28	93.3	0.316	1
Family survey register updated	69	76.7	23	76.7	24	80.0	22	73.3	0.164	0.921
Referral register available	72	80.0	28	93.3	25	83.3	19	63.3	8.326	0.018
Referral register updated	38	42.2	14	46.7	16	53.3	8	26.7	4.737	0.094
SNP register available	87	96.7	29	96.7	29	96.7	29	96.7	0.432	1
SNP register updated	55	61.1	15	50.0	20	66.7	20	66.7	2.25	0.325
Immunisation register available	88	97.8	29	96.7	30	100.0	29	96.7	--	
Immunisation register updated	46	51.1	15	50.0	17	56.67	14	46.7	0.467	0.792

Table 1. Overall Facilities Available in Different AWCs and Comparison between FLS, Nearby AWC and Non-Intervention AWCs

Variables for Knowledge Assessments	Total (n=90)		FLS (n=30)		Nearby (n=30)		NI (n=30)		Chi-Square	p-value
	No.	%	No.	%	No.	%	No.	%		
1000 days of human life means- the day a woman conceives to the day the child completes 2 years of age	53	58.9	30	100.0	18	60.0	5	16.7	11.915	<0.001

Under nutrition during 1000 days causes irreversible loss in growth and development of a child, but is preventable		37	41.1	14	46.7	13	43.3	10	33.3	1.193	0.551
5 key messages to be given during pregnancy to mothers for improving nutritional status	Consume variety of foods and take rest for 2 hours in the day apart from 8 hours sleep at night	67	74.4	24	80.0	25	83.3	18	60.0	5.023	0.081
	Consume more food, ¼ additional quantity than that is taken during normal condition	31	34.4	16	53.3	9	30.0	6	20.0	7.775	0.020
	Take and consume the supplementary nutrition food from AWC every day	17	18.9	4	13.3	7	23.3	6	20.0	1.085	0.630
	Consume 100 IFA during pregnancy, one tablet a day	44	48.9	16	53.3	16	53.3	12	40.0	1.423	0.491
	Use only iodised salt for consumption	25	27.8	13	43.3	8	26.7	4	13.3	6.642	0.041
Key points of complementary feeding	Frequency	36	40.0	16	53.3	12	40.0	8	26.7	4.444	0.108
	Variety/diversity	66	73.3	23	76.7	21	70.0	22	73.3	0.341	0.843
	Quantity	17	18.9	12	40.0	4	13.3	1	3.3	13.33	0.001
	Consistency	36	40.0	21	70.0	9	30.0	6	20.0	17.50	<0.001
	Active feeding	24	26.7	11	36.7	8	26.7	5	16.7	3.068	0.216
	Safe hygienic feeding	34	37.8	15	50.0	9	30.0	10	33.3	2.931	0.231
	Feeding during illness	22	24.4	11	36.7	4	13.3	7	23.3	4.327	0.124
Infant and Young Child Feeding (IYCF) practices	Early Initiation of breastfeeding within one hour of birth	45	50.0	22	73.3	16	53.3	7	23.3	15.20	0.001
	Exclusive breastfeeding from birth to six months of age	56	62.2	24	80.0	19	63.3	13	43.3	8.603	0.014
	Timely Complementary feeding from 6 months	31	34.4	16	53.3	9	30.0	6	20.0	7.775	0.020
	Continued breastfeeding till 2 years of age or beyond along with complementary feeding	31	34.4	13	43.3	9	30.0	9	30.0	1.575	0.455

Table 2. Overall Knowledge of Anganwadi Workers in FLS, Nearby AWC, Non-Intervention (Distant) AWCs

MCP (mother and child protection)card and its various uses	MCP card	78	86.7	30	100.0	27	90.0	21	70.0	3.750	0.104
	Record of health and nutrition services and care given to mother and child during pregnancy to 3 yrs. particularly of child's age	56	62.2	26	86.7	16	53.3	14	46.7	12.337	0.002
	Growth monitoring of children	68	75.6	27	90.0	21	70.0	20	66.7	5.103	0.073
	As a tool to counsel mothers	16	17.8	10	33.3	5	16.7	1	3.3	9.309	0.010
	Self-monitoring tool to access health and nutrition services by pregnant women and mothers	10	11.1	6	20.0	4	13.3	0	0.0	0.480	0.731
Introduction of complementary feeding at 6 months		64	71.1	26	86.7	21	70.0	17	56.7	6.640	0.040
AWW plots the growth chart in the MCP card		33	36.7	21	70.0	7	23.3	5	16.7	21.81	<0.001
Group counselling session on IYCF and maternal nutrition held at AWC		24	26.7	1	3.3	9	30.0	14	46.7	16.21	<0.001
Individual counselling session on IYCF and maternal nutrition held at AWC		25	27.8	1	3.3	8	26.7	16	53.3	19.888	<0.001
Practical demonstration on complementary feeding held at AWC		60	66.7	8	26.7	23	76.7	29	96.7	36.341	<0.001
Sneha Shivirs held at AWC		14	15.6	11	36.7	2	6.7	1	3.3	13.576	0.001
Mantri-Amrut-Ahar sessions held at AWC		19	21.1	16	53.3	3	10.0	0	0.0	13.017	0.001
Prothom-Ahar sessions held at AWC		20	22.2	15	50.0	5	16.7	0	0.0	7.500	0.013
Screening camps for identifying children with SAM held at AWC		19	21.1	11	36.7	5	16.7	3	10.0	6.443	0.044
Children identified as SAM referred to NRC from AWC		18	20.0	8	26.7	4	13.3	6	20.0	2.085	0.380
Severely underweight children and those with SAM followed up for improved nutritional status by AWW		25	27.8	14	46.7	7	23.3	4	13.3	8.981	0.010
AWW participates in VHND every month		84	93.3	30	100.0	30	100.0	24	80.0	--	

Table 3. Overall Knowledge of Anganwadi Workers about Different Services in FLS, Nearby AWC, Non-Intervention (Distant) AWCs

Awareness of Pregnant Women		**Total (n=252)**		**FLS (n=90)**		**Nearby (n=84)**		**NI(n=78)**		**p value**
		No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
Care during pregnancy	Consume variety of foods and consume more foods	138	54.8	46	51.1	45	53.6	47	60.3	0.476
	Take rest for 2 hours in the day	103	40.9	44	48.9	32	38.1	27	34.6	0.141
	Consume the supplementary nutrition food from AWC every day	75	29.8	29	32.2	17	20.2	29	37.2	0.051
	Consume 100 IFA during pregnancy, one tablet a day	33	13.1	17	18.9	3	4.8	13	16.7	0.009
	Use only iodised salt for consumption	5	2.0	1	1.1	2	2.4	2	2.6	0.742
Key points of complementary feeding	Frequency	35	13.9	20	22.2	12	14.3	3	3.8	0.003
	Variety	90	35.7	35	38.9	29	34.5	26	33.3	0.726
	Quantity	27	10.7	9	10.0	13	15.5	5	6.4	0.180
	Consistency	62	24.6	28	31.1	13	15.5	21	26.9	0.048
	Active feeding	57	22.6	24	26.7	10	11.9	23	29.5	0.015
	Safe feeding - clean and hygienic	68	27.0	36	40.0	20	23.8	12	15.4	0.001
MCP card and its various uses	MCP card present	190	75.4	61	67.8	65	77.4	64	82.1	0.088
	Record of health and nutrition services	70	27.8	23	25.6	32	38.1	15	19.2	0.023
	Messages for taking care during pregnancy to 3 years of child's age	11	4.4	5	5.6	3	3.6	3	3.8	0.800
	Growth monitoring of child	21	8.3	7	7.8	5	6.0	9	11.5	0.426

	Self-monitoring tool for services and care during pregnancy and child development	10	4.0	6	6.7	2	2.4	2	2.6	0.334
Red/orange colour of the growth chart indicates child is very weak		38	15.1	21	23.3	12	14.3	5	6.4	0.009
Yellow colour of the growth chart indicates child is weak		33	13.1	20	22.2	9	10.7	4	5.1	0.004
Green colour of the growth chart indicates child is normal in growth		42	16.7	23	25.6	13	15.5	6	7.7	0.008
A complementary feeding demonstration session held by AWW in village AWC		39	15.5	22	24.4	15	17.9	2	2.6	<0.001
Pregnant women's weight was recorded in VHND in AWC		106	42.1	42	47.2	21	25.0	43	55.1	<0.001

Table 4. Community Members' Interview- Pregnant Women

Awareness of Mother of Child below 2 Years		**Total (n=252)**		**FLS(n=90)**		**Nearby (n=84)**		**NI(n=78)**		**p value**
		No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
Care during pregnancy	Consume variety of foods and consume more foods	169	63.3	58	64.4	62	68.9	49	56.3	0.214
	Take rest for 2 hours in the day	98	36.7	38	42.2	30	33.3	30	34.5	0.406
	Consume the supplementary nutrition food from AWC every day	82	30.7	34	37.8	17	18.9	31	35.6	0.011
	Consume 100 IFA during pregnancy, one tablet a day	34	12.7	19	21.1	7	7.8	8	9.2	0.013
	Use only iodised salt for consumption	10	3.7	3	3.3	3	3.3	4	4.6	0.851
Key points of complementary feeding	Frequency	67	25.1	31	34.4	24	26.7	12	13.8	0.006
	Variety-	112	41.9	39	43.3	36	40.0	37	42.5	0.894
	Quantity	35	13.1	17	18.9	16	17.8	2	2.3	<0.001
	Consistency	89	33.3	42	46.7	19	21.1	28	32.2	0.001
	Active feeding	84	31.5	41	45.6	13	14.4	30	34.5	<0.001
	Safe feeding - clean and hygienic	83	31.1	46	51.1	20	22.2	17	19.5	<0.001
MCP card and its various uses	MCP card present	211	79.0	68	75.6	68	75.6	75	86.2	0.134
	Record of health and nutrition services	88	33.0	27	30.0	39	43.3	22	25.3	0.029
	Messages for taking care during pregnancy to 3 years of child's age	17	6.4	10	11.1	4	4.4	3	3.4	0.102
	Growth monitoring of child	40	15.0	19	21.1	13	14.4	8	9.2	0.084
	Self-monitoring tool for services and care during pregnancy and child development	13	4.9	6	6.7	5	5.6	2	2.3	0.452
Childs weight plotted in growth monitoring register		148	55.4	69	76.7	46	51.1	33	37.9	<0.001
Childs weight plotted in MCP card by AWW		70	26.2	48	53.3	17	18.9	5	5.7	<0.001
A complementary feeding demonstration session held by AWW in village AWC		52	19.5	26	28.9	23	25.6	3	3.4	<0.001
Received counselling individual/group on breastfeeding and maternal nutrition during VHND in AWC		73	27.3	36	40.0	20	22.2	17	19.5	0.004
Received counselling individual/group on complementary feeding during VHND in AWC		110	41.2	41	45.6	32	35.6	37	42.5	0.377

Table 5. Community Members Interview- Mother of Child below 2 Years

DISCUSSION

Our study showed a huge gap about availability of minimum essential commodities for providing quality services at AWCs irrespective of intervention and non-intervention centres. Recording and reporting has potential for improvement, though some was evident in intervention areas. Other studies have documented performance improvement of AWW after proper training[11] and inadequate training major reason for poor performance.[12]For strengthening and restructuring ICDS, there is need to redesign to transform AWC into a vibrant ECD centre.[5]

Manthan project implementation team worked directly with District Social Welfare Departments to strengthen community processes; catalysed service delivery; built capacity of ICDS teams on key nutrition interventions and established linkages with other departments. Our study showed significant improvement in many process indicators related to ICDS service delivery like knowledge of AWW about 1000 days approach, maternal and child nutrition, recording and reporting, though more focus need to be given for issues like iodised salt use and holding 'Sneha Shivirs' to detect moderate and severe malnutrition. Facility gap also to be corrected by better support from system and strengthening monitoring and supportive supervision.

Malnutrition starts in utero and first 1000 days of child's life between a woman's pregnancy and child's second birthday are considered important for child's growth and cognitive development and may last throughout lifecycle.

Significant improvement in knowledge of AWWs about 1000 days approach documented though knowledge level is variable for different interventions and improvement is seen amongst workers of FLS. Knowledge regarding maternal nutrition though very poor, significant changes were evident in intervention groups. India still contributes to about a third of total number of undernourished in world. Over 30% preschool age children are stunted and underweight. Deficiencies of micronutrients particularly anaemia effects over 70% women and children. Problem begins in womb with almost 19% newborns in India having low birth weight pointing to neglect of health and nutrition of women; adverse effects are multigenerational.[13]

Knowledge of AWWs regarding MCP cards, its utilisation and counselling showed improvement. Similarly, participation in VHND was universal in FLS, which is necessary for better convergence of health and nutrition related services. Roll out of MCP card prepared by using new WHO child growth standards need to be universalised. The goal of ICDS mission is to attain three main outcomes namely; prevent and reduce young child undernutrition by 10% points, enhance early development and learning outcomes in all children 0-6 years of age and improve care and nutrition of girls and women by one fifth.[5]

Awareness of community members showed variable responses. Knowledge regarding dietary diversity, rest during pregnancy was around 50%; supplementary nutrition to be provided by AWCs was 30% indicating unawareness as a barrier for utilisation of ICDS services by pregnant women. Significant improvement in many indicators of IYCF practices in intervention group was found (FLS); still overall awareness level was poor. Similarly, mothers having children under 2 years also showed better awareness about SNP, IFA supplementation, complimentary feeding, importance of MCP card, though overall awareness level is very poor and needs to be addressed.

ICDS did not have a component of disseminating nutritional awareness to the general population. This in a situation of lack of demand requires strong political will to implement it. Silent undernutrition crisis in India is an alarm and government response is urgently required. National Nutrition Policy must be revisited and updated and should address the problem holistically with reference to the latest demographic and epidemiological data as reflected in the NNMB Reports covering all age groups of the population.[10]Knowledge regarding importance of iodised salt intake was very low amongst both service provider (AWW) and beneficiaries. Currently, in India, common salt is being fortified with iodine on a mandatory basis. Though, DFS was mandated in Mid-Day Meal (MDM) in schools and ICDS feeding programmes in 2011, its implementation is tardy and there is a need to scale-up its production, distribution, monitoring and long-term implementation.[14]

Care of the young child is a social responsibility and cannot be left to the family alone. A social intervention is required where the needs of the child are addressed for feeding and care. Studies have reported poor skills development of Anganwadi children as against the private nursery school children, which could be attributed to poor stimulating environment including lack of play materials, hence there is need to improve the preschool environment of the Anganwadis.[15,16] Other studies have reported gaps in infrastructure mainly inadequacy of indoor and outdoor space, coverage of supplementary nutrition in children, regular supply of foods to the beneficiaries, gaps in preschool activities coverage, recording of immunisation, regular health checkup of beneficiaries and referral of sick children.[17] There is a need to do trend analysis of outcome indicators to monitor effect of such intervention and to see the sustainability of such approach.

CONCLUSION

Capacity building and supportive supervision can be done to strengthen the system of ICDS by use of such NGO/CBO-like project Manthan in areas where infrastructure is weak. Nutrition counselling for pregnant women, lactating mothers and mothers of under 3 children, improved growth monitoring and counselling with use of MCP card and celebration of VHND in convergence with NHM has potential to improve the situation further.

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