



Assessment of Home-Based Care for Young Children through Mitanin in rural area of Chhattisgarh

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Citation: Mukesh Dewangan, et al. (2024), Assessment of Home-Based Care for Young Children through Mitanin in rural area of Chhattisgarh, *Educational Administration: Theory and Practice*, 30(1), 6359-6366

Doi: 10.53555/kuey.v30i1.9707

ARTICLE INFO

ABSTRACT

Background:

The HBYC program was launched in April 2018 by the Ministry of Health and Family Welfare, Govt. of India. The objective of Home-Based Care for Young Children (HBYC) is to reduce child mortality and morbidity and improve nutrition status, growth, and early childhood development of young children through additional five home visits by ASHAs. In Chhattisgarh, the Rural Mitanins (ASHAs) program has been launched since 2002. Total approx. 68,000 mitanins have been trained on HBYC in the years 2019-20. Mitanins conduct a series of home visits from 3 to 15 months of age.

Methodology:

The cross-sectional quantitative study was conducted in November–December 2023. The study selected a sample representative of eligible rural households in the state. The state has a total of 146 rural administrative units, known as blocks. Each block has around 350 to 500 habitations. One habitation was selected from each rural block using systematic random sampling. Thus, 146 rural habitations got selected. The size of a habitation ranged from 30 to 80 households. In each selected habitation, all eligible households were to be surveyed. The survey was able to cover a total of 631 households.

Findings:

94% of the children received home- visits from a Mitanin. 87% receiving the relevant messages from Mitanins. 77% of children had timely initiation of complementary feeding. 57% of children had received CF five or more times in a day. 60% of children consumed the various types of food group. 81% of children received the THR. 49% of children consumed the THR. 32% of families were adding oil to food. 71% of children weighed at least once in the previous two months.

Conclusion:

It showed high coverage rates in making home visits for HBYC and delivering the necessary messages. They were able to cover a large proportion of the sick children and provide necessary management of illnesses. The intervention through Mitanin was associated with improvements in timely initiation, frequency, and diversity of complementary feeding.

Key Words: HBYC, Mitanin, ASHA, Complementary feeding

Introduction:

Improving the health of mother and children continues to be a priority under National Health Mission (NHM) as is reflected in National Health Policy 2017. Taking cognizance of the importance of nutrition in child survival and development, Government of India has launched POSHAN Abhiyaan which has set the targets to prevent and reduce stunting & undernutrition amongst children in the age group of 0-6 years by 2% per year and reduce the prevalence of anaemia among young Children (6-59 months) by 3% per year. Child nutrition also has close linkage with optimum WASH practices at individual and community level. To accelerate the efforts towards achieving universal sanitation coverage and optimum WASH practices at community level, the Hon'ble Prime Minister of India launched the Swachh Bharat Mission (SBM) in 2014.

Significant decline in child mortality has been registered in last decade and under five mortalities in India currently stands at 32 per 1000 live births and Chhattisgarh has 41 per 1000 live births (SRS 2020). One third of under-five child deaths are due to preventable causes such as diarrhoea, pneumonia and measles. Nearly 35% of child mortality is attributable to undernutrition. It also poses irreversible hindrance to children's cognitive development and physical growth while increasing their susceptibility to childhood infections. All these factors culminate in diminished learning capacity and poorer school performance among children, finally affecting adult productivity and thus resulting in economic loss to the country. As per Global Nutrition Report 2017, Investing in this area offers a \$16 return for every \$1 invested. Thus, there is a need for focussed attention on the strategic interventions for achieving National Health Policy Goals, Sustainable Development Goals and also to achieve the target of POSHAN Abhiyaan.

A close look at the determinants of undernutrition reflects that suboptimal Infant & Young Child Feeding (IYCF) practices at community level is one important determinant of undernutrition in children. Latest national survey (NFHS- 5) reports early initiation of breastfeeding among children under 3 years of age is 41.8% in India. although institutional delivery stands at around 89%. India's status of children age 6-8 months receiving solid or semi-solid food and breastmilk dropped from 55.8% (NFHS-3) to 45.9% (NFHS-5). Chhattisgarh's status of children age 6-8 months receiving solid or semi-solid food and breastmilk dropped from 54.5% (NFHS-3) to 41.3% (NFHS-5).

Chhattisgarh NFHS-4 & NFHS-5 reported that Children under age 3 years breastfed within one hour of birth is dropped from 47.1% to 32.2% although institutional delivery stands at around 85.7%. Children age 6-8 months receiving solid or semi-solid food and breast milk is dropped from 54% to 41.3%. The proportion of children age 6-23 months who received adequate diet in 2019-21 is 9.3% is very low. Adequate diet in a child 6-23 months is defined as a child fed either breastmilk/source of dairy; and age-appropriate number of food groups and age-appropriate number of meals per day. Numerous gaps and barriers observed in practice of IYCF include poor awareness on feeding practices and inadequate knowledge on timing and quality of complementary feeding.

Intensifying efforts to address undernutrition, the Health Department. has launched a novel initiative for home-based care for young children (HBYC). The objective of Home-Based Care for Young Children (HBYC) is to reduce child mortality and morbidity and improve nutrition status, growth, and early childhood development of young children through additional five home visits by ASHAs. Structured home visits by ASHAs, starting from the 3rd month and continuing in the second year till 15 months, are proposed under Home Based Care of Young Children (HBYC) to plug the gap between health system contacts with family and provide a platform to improve child nutrition, immunization, stimulate early childhood development, practice hygiene, and reduce common childhood illnesses such as diarrhea and pneumonia. The purpose of the additional five home visits by Mitanins is the promotion of evidence-based interventions delivered in four key domains, namely nutrition, health, child development, and WASH (water, sanitation, and hygiene).

In Chhattisgarh, the Rural Mitanins (ASHAs) program has been launched since 2002. Total of approx. 68000 rural Mitanins have been selected in rural habitation of Chhattisgarh state. Mitanins have been trained on HBYC in 2019-20. Mitanins conduct a series of home visits from 3 to 15 months of age. Apart from the five visits, Mitanin is also expected to advise the mother on exclusive breast feeding, complementary feeding, and early childhood development. They provide advice on immunization, hygiene, IFA and ORS supplementation, and referrals for danger signs.

All Mitanins in Chhattisgarh have completed their HBYC training and have implemented it in practice for more than four years. It is important to assess the HBYC initiative through Mitanins in rural Chhattisgarh in order to inform the future strengthening of the initiative.

The specific objectives of the study were:

- What is the proportion of eligible children receiving home visits for HBYC by ASHAs?
- What proportion of the covered children's caregivers received the necessary messages?
- What proportion of children are receiving the desired practices from caregivers?

Methodology

This is a cross-sectional quantitative study based on a primary household survey. The eligible households were those with children aged 7 to 24 months. The households were further subdivided into two age groups—those with a child aged 7 to 12 months and 13 to 24 months.

Sampling: For a confidence level of 95% and a desired precision of 5%, the sample size required was calculated as 385 eligible households. The study selected a sample representative of eligible rural households in the state. The state has a total of 146 rural administrative units, known as blocks. Each block has around

350 to 500 habitations. One habitation was selected from each rural block using systematic random sampling. Thus, 146 rural habitations got selected. The size of a habitation ranged from 30 to 80 households. In each selected habitation, all eligible households were to be surveyed. The survey was able to cover a total of 631 households.

Data collection: The survey was conducted in the month of November–December 2023. A semi-structured, pre-tested questionnaire was used for interviewing the caregivers. Data was collected on the socio-demographic characteristics, complementary feeding practices by the family, supplementary nutrition received for children under the Integrated Child Development Services (ICDS) program of the government, weighing, home visits by Mitadin ASHAs for HBYC and kinds of advice provided to caregivers, occurrence of illnesses in children, and the role played by Mitadin ASHAs in addressing the illnesses.

For assessing the HBYC home visits, the period was of three months preceding the survey. The questions on food consumed by each child were for the day preceding the survey. The types of foods covered in the survey included six types of foods: cereals, pulses, eggs, meat, fish, vegetables, and fruits. To reduce the possibility of recall bias, the question on the age of initiating complementary feeding was limited to children in 7–12 months of age. For the occurrence of illnesses in children, a recall period of 15 days was taken. The specific illnesses covered were diarrhea, cold and cough, fever, and pneumonia.

The participants were informed about the purpose of the study, and consent was obtained before data collection.

Results:

Coverage of home visits for HBYC

The socio-demographic profile of the households is given in Table 1. Overall, 93.9% of the children in the age group of 7–36 months had received a home visit from a Mitadin in the preceding three months (Table 1). But the proportions of children receiving a home visit from Mitadins were similar across different categories (Table 1).

Table 1: Sociodemographic profile of the sample and proportion of children who received a home visit from ASHA in preceding 3 months

Demographic profile	No.	% (N=631)	Proportion of children who received home visit of Mitadin in previous 3 months(N=631)
Caste category			
ST	252	39.9	92.9
SC	82	13.0	92.7
OBC	275	43.6	96.4
Gen	22	3.5	81.8
Family size			
Below 5 members	298	47.2	92.3
Above 5 members	333	52.8	95.5
Age of child			
7 to 12 months	315	49.9	94.6
13 to 24 months	316	50.1	93.4
Gender			
Male	325	51.5	96.3
Female	306	48.5	91.5
Mothers education			
8th standard or higher	448	71.0	93.8
5th to 7th standard	57	9.0	93.0
1st to 4th standard	27	4.3	100.0
No formal education	99	15.7	93.9
Division			
Raipur	104	16.5	91.3
Durg	110	17.4	92.7
Bilaspur	140	22.2	92.9
Surguja	128	20.3	93.8
Bastar	149	23.6	98.0
Overall	631	100	93.9

Advice provided by ASHAs under HBYC

The proportion of households receiving the various relevant messages from Mitans during HBYC home visits is given in Table 2.

Table 2: Proportion of households receiving different HBYC messages from ASHA by age group of children (% with 95% CI) in rural Chhattisgarh

Advice/message	7 to 12 months (N=315)	13 to 24 months (N=316)	Overall (N=631)
Starting Complementary feeding at six months age	85.9 (81.9 to 89.9)	84.1 (79.9 to 88.3)	85.0 (82.1 to 87.9)
Continuing breastfeeding along with complementary feeding	82.6 (78.2 to 86.9)	81.0 (76.5 to 85.5)	81.8 (78.7 to 84.9)
Increasing frequency of feeding	83.9 (79.7 to 88.1)	89.2 (85.6 to 92.7)	86.5 (83.8 to 89.3)
Increasing diet diversity	65.4 (60.0 to 70.9)	67.5 (62.1 to 72.8)	66.4 (62.6 to 70.3)
Adding oil in complementary feeding	75.2 (70.2 to 80.1)	72.2 (67.1 to 77.3)	73.7 (70.1 to 77.2)
Feeding supplementary food received from ICDS	81.5 (77.1 to 86.0)	87.1 (83.3 to 91.0)	84.3 (81.4 to 87.3)
Continuation of feeding during illness	76.5 (71.7 to 81.4)	74.2 (69.2 to 79.3)	75.4 (71.9 to 78.9)
Giving ORS for diarrhoea	78.5 (73.8 to 83.2)	86.4 (82.5 to 90.4)	82.5 (79.4 to 85.5)
Giving IFA supplementation	58.7 (53.1 to 64.3)	64.7 (59.3 to 70.2)	61.7 (57.8 to 65.6)
Regular weighing	76.5 (71.7 to 81.4)	81.4 (76.9 to 85.8)	78.9 (75.6 to 82.2)
Hand washing for feeding	80.2 (75.7 to 84.8)	82.4 (78.0 to 86.7)	81.3 (78.1 to 84.4)
Immunization	89.3 (85.7 to 92.8)	91.5 (88.3 to 94.7)	90.4 (88.0 to 92.8)
Psycho-social stimulation	84.9 (80.8 to 89.0)	90.2 (86.8 to 93.6)	87.5 (84.9 to 90.2)

During HBYC home visits, Mitans assessed 92.9% of the children for feeding provided the previous day. They also assessed 45.6% of children for recent illnesses.

Complementary feeding (CF) practices of households

Initiation of complementary feeding

The distribution of infants according to the age at which CF was started is given in Table 3. There were 22.5% children for whom the initiation of complementary feeding happened later than the age of six months.

Frequency of complementary feeding

The frequency of CF was asked for the day preceding the survey. Overall, 57.2% of children had received CF five or more times in a day, while those receiving CF 1-2 times a day were 9.0% (Table 4).

Table 3: Age at which complementary feeding was initiated in rural Chhattisgarh

Age of starting Complimentary Feeding	Proportion of children (7-12 months) (N=315) % with 95%CI
6 Month	77.5 (72.5 to 81.8)
7 Month	14.0 (10.5 to 18.3)
8 Month	1.6 (0.7 to 3.8)
9 Month	3.2 (1.7 to 5.8)
10 Month	0.6 (0.2 to 2.5)
11 Month	3.2 (1.7 to 5.8)

Table 4: Proportion of children according to frequency of complementary feeding received the previous day in rural Chhattisgarh

Frequency of complementary feeding on preceding day	7 to 12 months (N=315)	13 to 24 months (N=316)	Overall (N=631)
1-2 times	13.0 (9.7 to 17.2)	5.1 (3.1 to 8.1)	9.0 (7.0 to 11.5)
3-4 times	39.4 (34.1 to 44.9)	28.2 (23.5 to 33.4)	33.8 (30.2 to 37.5)
5 or more times	47.6 (42.1 to 53.2)	66.8 (61.4 to 71.8)	57.2 (53.3 to 61.0)

Food diversity in complementary feeding

The diversity of food consumed by children was asked for the day preceding the survey. The responses have been summarized in Table 5.

Table 5: Types of foods consumed by children the previous day in rural Chhattisgarh

Different types of Food groups	7 to 12 months (N=315)	13 to 24 months (N=316)	Overall (N=631)
Cereals	87.0 (83.2 to 90.7)	90.2 (86.9 to 93.5)	88.6 (86.1 to 91.1)
Tubers	41.9 (36.4 to 47.4)	55.4 (49.9 to 60.9)	48.7 (44.7 to 52.6)
Eggs	15.6 (11.5 to 19.6)	21.5 (17.0 to 26.1)	18.5 (15.5 to 21.6)
Legumes	61.3 (55.9 to 66.7)	65.5 (60.2 to 70.8)	63.4 (59.6 to 67.2)
Flesh foods	10.8 (7.3 to 14.2)	15.2 (11.2 to 19.2)	13.0 (10.4 to 15.6)
Vitamin A rich fruits and vegetables	41.3 (35.8 to 46.7)	58.5 (53.1 to 64.0)	49.9 (46.0 to 53.8)
Other Vegetables	37.5 (32.1 to 42.8)	53.8 (48.3 to 59.3)	45.6 (41.7 to 49.5)
Fruits	21.0 (16.4 to 25.5)	36.1 (30.8 to 41.4)	28.5 (25.0 to 32.1)
Dairy products	25.4 (20.6 to 30.2)	27.2 (22.3 to 32.1)	26.3 (22.9 to 29.8)
Take Home Ration from ICDS	46.7 (41.1 to 52.2)	51.9 (46.4 to 57.4)	49.3 (45.4 to 53.2)

Association between receiving ASHA's advice and desired practices

Table 6 provides a comparison of the desired practices between households that received ASHAs' advice and those that did not. It showed that the indicators of CF were significantly higher for those who received advice from Mitansins.

Table 6: Practices according to advice received from ASHA in rural Chhattisgarh

Indicator-rural	Received ASHA's advice	Did not Received ASHA's advice	Chi-square test (p-value)
Complementary feeding started at six months age	83.1 (70.9 to 90.8)	46.2 (40.5 to 51.0)	0.014
Mean frequency of complementary feeding (on previous day)	4.6 (4.5 to 4.7)	3.9 (3.7 to 4.2)	0.002
Mean number of food types fed (on previous day)	3.8 (3.7 to 4.0)	3.5 (2.7 to 4.2)	0.008
Consumed supplementary nutrition received from ICDS programme	85.6 (82.5 to 88.7)	61.8 (53.4 to 70.3)	<0.001
Added oil in complementary feeding	39.1 (34.5 to 43.7)	15.5 (10.3 to 20.6)	0.004
Weighing done (in last 2 months)	77.8 (74.0 to 81.6)	50.3 (42.5 to 58.1)	<0.001

Supplementary Nutrition under Government Program

Under the Integrated Child Development Services (ICDS) program of the government, there exists a provision for supplementary nutrition for the age group covered in the study, i.e., children between 6 months and 3 years of age. In Chhattisgarh, children of the above age group receive 750 g of ready-to-eat powder (consisting of wheat, sugar, gram, soya, and oil) each week. Around 80.6% (77.7–83.8%) children had received the above supplementary nutrition in the week preceding the survey. Out of them, 49.3% (45.4 to 53.2%) children had consumed the ready-to-eat powder on the day preceding the survey.

Addition of oil in the food

It was found that 31.8% (28.1%-35.4%) of families were adding oil to food during CF. This proportion was 34.3% (29.0%-39.6%) for the 7–12 month group and 29.4% (24.4%-34.5%) for the 13–24 month age group.

Weighing

According to the caregivers, 70.7% (67.1%-74.2%) of children had been weighed at least once during the previous two months. The proportion of children weighed was 70.8% (65.7%–75.8%) for the 7–12 month group and 70.6% (65.5%–75.6%) for the 13–24 month age group.

Illnesses in children and the role of ASHAs in managing them

Around 45.6% of the children had at least one episode of illness over the 15 days preceding the survey. The most frequent illness reported was cold and cough (37%), followed by fever (11%) and diarrhea (7.5%).

Of the children who had an episode of the above symptoms during the preceding fifteen days, 59.0% had contacted a Mitansin.

Discussion

Exclusive Breastfeeding Faltering from 2-3 Months of Age. The median duration of exclusive breastfeeding is shown to be 3 months for boys and 2.8 months for girls. Lack of breastfeeding or faltering in exclusive breastfeeding from age of 3 months onwards plays as one important risk factor of the diarrhoea and pneumonia related morbidity and mortality during this first two years of life. Lack of breastfeeding or

faltering in exclusive breastfeeding from age of 3 months onwards plays as one important risk factor for undernutrition and sickness during this first two years of life.

Importance of Early Childhood for Better Nutrition and Development Analyses, using the WHO Growth Standards, confirm the importance of the first two years of life as a window of opportunity for growth promotion. These findings highlight the need for early life interventions to prevent the growth failure that primarily happens during the first two years of life, including the promotion of appropriate infant feeding practices.

Early childhood also is the most rapid period of development in human life. The years from conception through birth to first few years of age are critical to the complete and healthy cognitive, emotional and physical growth of children. This in turn ensures optimum health and wellbeing in adult life.

Lancet 2013 analysis shows that 72% of diarrhoea associated deaths and 81% of pneumonia associated deaths occur in the first two years of life indicating that an increased emphasis on prevention and treatment is required in children in this age group.

Global evidence shows that community-based intervention packages can reduce 27 percent of the child mortality indicating scaling up of community-based care through packages which can be delivered by a range of community workers. This in turn enables mothers to practice appropriate health and nutrition related behaviours including increased risk perception of childhood illnesses. Within Indian context, the health system contact between four months to second year of life of the young child is a 'missed opportunity' for promotion of various child caring and development practices during this crucial period. There is a narrow window of opportunity between 6 months and 2 years to prevent malnutrition in Children.

Current Gap in Health System Contacts During Early Childhood. The Ministry of Health and Family Welfare is presently implementing Home Based Newborn Care (HBNC) since 2011 through ASHAs. The roll out of HBNC has demonstrated that ASHAs are able to provide home based care through defined number of structured visits. However, these structured visits end on the 42nd day after birth. Beyond this, ASHAs only conduct household visits to mobilize children for immunization or in case when the child needs healthcare services for management of illnesses or malnutrition. This means that there is no household contact with the child by the ASHA unless the family reports a childhood illness.

Considering the influence of diarrhoea, pneumonia, undernutrition and the importance of WASH related interventions on overall child survival and development, addressing this gap in health system contact is crucial. Therefore, additional home visits by ASHA between 3 and 15 months are proposed under Home Based Care of Young Child (HBYC) to fill this gap. The household visits would also provide another platform to improve early childhood development through play and communication, optimal nutrition, hygienic environment and health services.

Home visits by ASHA starting from 2- 3month and continuing in second year till 15 months under Home Based Care of Young Child (HBYC) to plug the gap between health system contacts with family and provide platform to improve child nutrition, immunization, development, hygiene practices and reduce common childhood illnesses such as diarrhoea and pneumonia.

Anganwadi workers continue to provide '**Take Home Ration**' and nutrition-specific counselling to mothers. In addition, she will record weight of the young children and monitor growth and development using MCP card as per guidelines. Based on the growth chart, underweight children will be identified and taken up for further management.

A defined set of skills required by ASHA to conduct effective home visits and fulfil the specified objectives. Many of the skills to deliver relevant information and services through home visits is taught to ASHA Modules. In order to reinforce existing skills and provide new set of skills, an additional round of training shall be conducted with adequate hands-on practice Refresher trainings should also be held periodically to ensure knowledge and skill retention. The supply of HBYC cards, ORS and IFA syrup should be replenished regularly, as per requirement. Promoting ECD, IFA supplementation and reinforcing ORS use, complementary feeding, and hand washing etc. specified under HBYC.

Our study in Chhattisgarh state found that 94% of children in 7 months to 2 years age group had received aHBYC visit from a MitaniASHA in the preceding three months. The coverage rate was found to be similar for children in different ages within the above age-group. A study in multiple Indian states had reported a coverage rate of 39% by CHWs for children in age group of 3 to 15 months.

This study found that timely initiation of complementary feeding at 6–8-month-old children was performed by 77%, which is very high as compared to the earlier studies done in Chhattisgarh and also very high as compared to the study done by AIIMS Raipur and the study done by Roy S. The CG NFHS-5 (2019-21) reported only 41.3% of children age 6–8 months receiving solid or semi-solid food and breastmilk.

The minimum meal frequency (2-3 times) met by children 6–23 months is 33.8%, which is almost similar to earlier studies done in Chhattisgarh. It is less as compared to the study done by AIIMS Raipur, which was 62%, and CG NFHS-5(2019-21), which is 23%. Around 57% children were fed five or more times in a day, while percentage of children receiving it three or more times was above 80%.

This study showed that receiving advice from Mitaniins was associated with increasing diversity of foods in children's diet. The minimum dietary diversity met by children 6–23 months is 60%, which is very high as compared to earlier studies done in Chhattisgarh and also high as compared to the study done by AIIMS Raipur, which was 4.1%. The CG NFHS-5 (2019-21) reported only 42%. Studies from other parts of India have reported minimum diet diversity (consuming four or more food groups) ranging from 33 to 67%. The proportion of children consuming eggs, fish/ meat, fruits and dairy product was found to be poor in the current study. The poor consumption of poultry or meat has to be assessed in the context that around 82% of population in Chhattisgarh is non-vegetarian. Chhattisgarh is one of the poorest states in India.

While the ICDS programme had provided supplementary food for above 81% of the children, the overall proportion of children actually consuming it the previous day was above 56%. This indicates the need to explore other options of providing supplementary nutrition to this age group, including feeding hot cooked meals, eggs and providing crèches or daycare services.

In this study, above 32% of households reported that they added oil in CF the preceding day. An earlier study in Chhattisgarh showed that one third of the families added oil to their child's food. Regarding care seeking during an episode of illness, it was found that Mitaniin were contacted in 32% of cases of diarrhoea, fever and cold/cough in children. Such coverage rates are significant considering the statewide scale of HBYC programme assessed in our study.

Limitation

The data on weight and practices of families presented here were as reported by the caregivers and not by actual observation. The study did not collect information on breastfeeding and early childhood development, though these are also important elements.

Conclusion

This study clearly highlights the complementary feeding practices and nutritional status of the children aged 6–23 months. 77% of children (6–8 months) were timely initiators of the complementary feeding. 34% of children met the minimum meal frequency. 60% of children have minimum dietary diversity. 71% of children had been weighed at least once during the previous two months. Around 45.6% of the children had at least one episode of illness over the 15 days preceding the survey.

Recommendations

This study assessed the impact of HBYC through ASHA (Mitaniin) in Chhattisgarh. The ASHAs showed high coverage rates in making home visits for HBYC and delivering the necessary messages. They were able to cover a large proportion of the sick children and provide necessary management of illnesses. The ASHA intervention was associated with improvements in timely initiation, frequency, and diversity of complementary feeding. Along with improving food security of households, covering a large share of the young children population with quality home visits under scaled-up ASHA programs can be the key to achieving improvements in complementary feeding and child care practices in developing countries.

There is scope for improvement in the provision of advice by Mitaniins on giving IFA supplementation. Future efforts of ASHAs in Chhattisgarh should focus on improving practices related to increasing diet diversity, timely initiation of complementary feeding, frequency of feeding, and increasing calorie density of food. Increasing the consumption of egg, fish food, fruits, dairy products and THR. It will provide the necessary good-quality protein to young children and improve dietary diversity. ASHA must be contacted and follow-up when the child has got illness.

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