

A REPORT

NUTRITION PROGRAMME IN
NIZAMUDDIN BASTI

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Section 1: Background

Undernutrition is a huge problem which impacts children as well as the adult population. Undernutrition at an early age is linked to the low academic achievement at a later stage. The cognitive impact of poor nutrition has been well established. Thus a poor diet during childhood has implications on the quality of life during adulthood. The figures of undernutrition in urban areas as discussed in the NFHS 3 are alarmingly high; 47.1% children are undernourished in urban areas which is higher than all India figures of 42.5%. The percentage of severe stunting is about 54.2% as compared to an all India rate of 48%.

The food habits of a family are linked to many factors such as financial status as well as cultural and traditional practices. However with globalization, the food habits of people have undergone an enormous shift. On one hand the rate of undernutrition is not reducing, but on the other hand the demand of factory produced, less nutritious food items are on a rise. A key note address titled "Globalization of Indian diets and transformation of food supply systems" mentions the fact that there is a change in urban fabric due to globalization and there has been a loss of many traditional forms of diets and a lot of duplicate forms of fast food items have taken their place. A study by Kumar and Aggarwal titled "Patterns of Consumption and Poverty in Delhi Slums" points out to the fact that maximum expenditure i.e. 72.26% of the total expenditure in urban slum households is on food items. In the given study, maximum numbers of households fall in a category of Rs 40-59 per day expenditure on food.

The high rate of migration in the basti is a characteristic of urban poor population. There are greater number of Below Poverty Line (BPL) families in three clusters of the basti, i.e., Nizamnagar (36 %), Khusronagar (31 %) and Dildarnagar (29 %). Also a high percentage of population is involved in daily wage labour (18%) which implies a lack of regular income in the family. There are several ways that the lack of regular income impacts a household, inability to consume nutritious food being a major one. In a National Nutrition Monitoring Board study (referred to in Indian Paediatrics Journal) it was found that there was a lower consumption of nutrient and energy, comparable to landless labour in rural areas (1994).

It is commonly known that a rise in economic status is not always accompanied by a change in the nutritional practices. Often a rise in economical status leads to higher consumption of energy rich foods which may not be nutritive. Consumption of these foods is often linked to various factors such as ease in availability, attractiveness in packaging, low cost of the items available among others. However these factors can be looked into further detail to understand why certain food habits are adopted as compared to others.

The analysis of infant feeding practices in slum areas by Ghosh and Shah (2004) reveals certain disturbing findings. The low percentage of children being breastfed has been attributed to the fact that mothers often work outside homes and mostly in the unorganized sector. This sector does not provide maternity entitlements to the women in general and/or at the workplace. These factors have the

propensity to erode breastfeeding and child rearing practices. Care by older siblings was also mentioned. Also late introduction of complementary feeding was observed which creates a gap in meeting of energy requirement in children beyond the age of six months. Exclusive breastfeeding till six months of age is very essential and complementary feeding must start after the child completes six months of age.

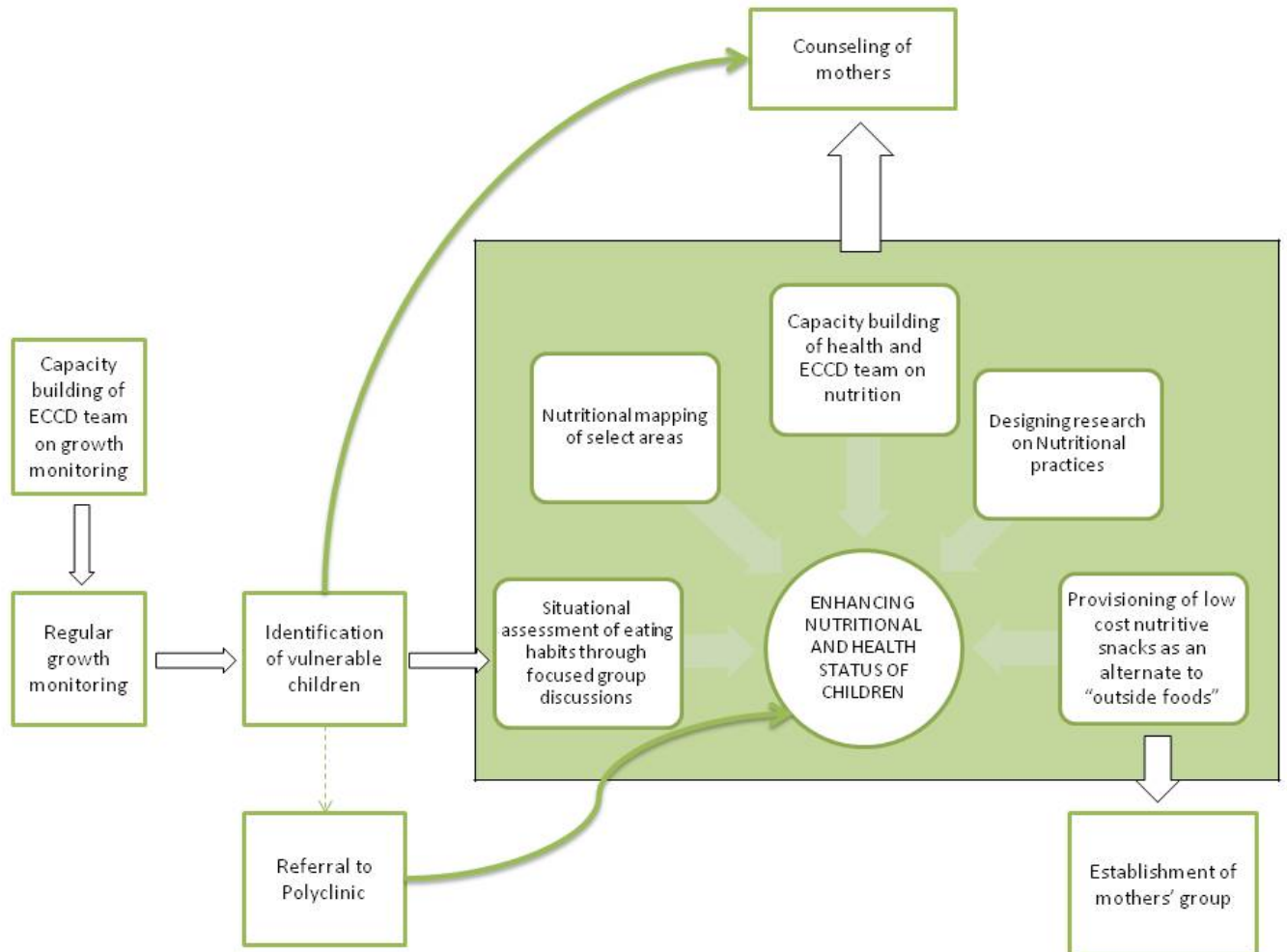
The growth monitoring programme implemented in the year 2011 revealed findings which were not too surprising. A large number of children were found to be underweight (almost 40%). This rate is high though quite normal for an urban settlement setting as mentioned in the above section. Even though ICDS has been giving supplementary nutrition to children, it has not brought about the desired change in the weight of children. Many factors have been attributed to this problem, however a major one being access of information to mothers. The lack of access to information combined with poor economic status of families does have a lasting impact on children's nutrition. While working in the field it was observed that the sanitation practices are often not observed which leads to high infection among children.

Section 2: Methodology

Based on the general discussion with the health workers and the issues identified in the community, the activities planned out for the work of the year were:

1. **Situational assessment:** The assessment of the situation was planned through focused group discussions with mothers to identify food related practices that impact the nutritional status of children under 6 years in the basti. Along with this it was also decided to map the Basti in terms of places from where households bought ration, children purchased junk food (known as *cheez*), places where street vendors sold open food and the community water points of the basti. This was done as an attempt to identify the most common/ used places from where people bought ration, so that cost of food materials can be identified, and attempt can be made to procure the food items cheaper than price at which community usually buy. It was also planned to identify the places from where children generally buy junk food (open and packed), so that efforts can be made to assess the quality of the food and identify which food items are most commonly eaten by the children.
2. **Training of health workers:** The project had initiated a community health initiative in February 2012. The first activity here was identification and capacity building of the community health team. Nutrition formed a key component of the health initiative. A key component was training the health team on nutritional needs of the people, especially vulnerable groups like pregnant women, lactating mothers, infants and preschool children. Thus in the present work, health workers were trained on nutritional needs and feeding patterns of each vulnerable group. This was done with the objective that the information imparted to the health workers will cascade down to the community as the community health team has to meet with the community on the regular basis and the project aims to create repositories of knowledge within the community.
3. **Developing low-cost food products:** It was planned to develop low cost food products which were cheap yet nutritious. Field observations indicated that families tended to spend a significant amount of money for snack food for children – most of these had little nutritional content. It was with the intention of introducing low cost and nutritious snack food that this pilot was initiated. A women's self help group was organised and trained for the purpose of preparing, popularising and ultimately retailing it in the basti.
4. **Community engagement in the nutrition related activities:** Maximum interest of the community to the nutrition work could be generated through actively involving them in the nutrition related activities. Thus the study was planned in a way to involve community members in the nutritional activities. As part of the activities, the interested community members were identified and were taught to prepare low-cost nutritious food products to be sold in the community. This self help group was formed with the idea of improving livelihood of women on the basti and help in producing the product which is nutritious and can be eaten by children as an alternate to the junk food.

5. **Reducing the cost of food ration:** An attempt was made to reduce the cost of food items commonly procured by household as a ration. This included rice, wheat and pulses (Chana Dal). This was tried to be done to improve purchasing power of the families.



Section 3: Field Activities

The baseline study and the work in 2011 indicated that various factors affected growth and development of young children in the basti. There was high prevalence of anaemia among pregnant women which had direct implications on the health of mother and young children. The malnutrition rate was alarmingly high among young children (references). Forty nine percent children below three years of age were identified as undernourished which has a significant impact on cognitive development at later stages in life.

From previous studies, it was found that there was high awareness among mothers about the importance of breast-feeding. However, it was tough to ascertain that how much of knowledge translated into practice. It was also found that although mothers knew about breast-feeding and its importance, they had doubts about the exact duration of exclusive breastfeeding. Gaps were also recognized in introducing complementary feeding due to low awareness (43%). Lack of awareness of feeding practices has huge implications for the weight of a child. As gathered from the survey 57% women were unaware about duration to initiate complementary feeding. In the survey it was also found that 64% children were stunted, undernutrition over a period of time. Lack of awareness about the anganwadi centres (50%) was present in the basti.

From the previous reports and during field visits, it was observed that access to food is not an issue in this basti. Although food is not available through ration cards or shops, still people have access to food. The purchasing power of the basti dwellers is comparatively better than people living in other vulnerable slums of Delhi. Still the question arouses, why children in the slums were malnourished despite having access to the food?

After a general discussion with the community members and the health workers along with the results of the past report, two major reasons were identified for the high malnutrition among children in the basti were:

1. Lack of awareness in community about nutrition needs and appropriate feeding practices of pregnant and lactating women and children.
2. A lot of resources/ money are spent on unhealthy and junk food by the basti dwellers, especially children. It was also observed in the field study, that boys in the basti were more severely anaemic than girls, which was referred to be due to intake of diet not rich in iron and consumption of junk food from the streets, which perhaps were consumed more by boys than girls as part of indulgence.

3.1 Situational Analysis

The situational analysis was conducted to understand the issue of nutrition and health as perceived by mothers with children under six years of age. The field impressions while growth monitoring programme of the past year revealed unhealthy eating practices amongst children. However to substantiate these impressions, focused group discussions (FGDs) were conducted with participants being mothers of children below 6 years of age. These mothers were identified through the growth monitoring done in three clusters, namely Nizam Nagar, Dildar Nagar and Khusro Nagar. Each FGD consisted of 10-12 women. Some participants of the FGDs were members of the health team living in those areas. These discussions ranged for 1-1 ½ hours. The guidelines for conducting the FGD is attached with the annexure (Annex 1)

The FGDs yielded rich data in terms of understanding the nutritional practices and understanding of the community. Some of the notable points which were raised by the mothers were as follows:

- Young kids play outside in the mud all day long which causes illness in children. Often they don't wear clean clothes which add to the illness.
- *"Maggi ke elawa bacche kuch khaate hi nahi hain"*. Children don't eat anything other than Maggie Noodles.
- When children are unwell the weight is lower
- Many women go for work, so children themselves decide the portion size. Often this is not adequate as they are not able to gauge how much they should eat.
- *"Agar wazan kam hota hai toh aanganwadi se kuch dawai nahi milta"*. Children do not get any medicine from Aanganwadi centres, they are only told that their children are weak.
- If children have worm infestation, even then weight is poor.
- Children who are weak are more likely to catch infections.
- Crèche facility is not available, only HOPE crèche is there. These also become difficult to access. Ask poor people to send their children in diapers. Crèche workers don't clean the child if he soils himself. Also the crèche runs between 12 and 2.
- Eating regularly is also important. There should not be too much gap in eating.
- Children argue that they want to eat outside. So should we pander to all demands? Have to be firm with children that cannot eat outside food all the time.
- There are no government ration shops which sell grains at a cheaper rate. In Bhogal, only oil is available and that too only for those who have a BPL card. It is very difficult to get a card made.
- If the landlord agrees, only then the card can be made because most tenant families do not have residence proof.
- Loans for food are taken from Tayyab bhai's shop, however they give loans only to people they know. The food stuff available there is good.
- There are small stones in the rice sometimes but daal has no problem. Tayyab bhai's shop is expensive.

- Those who earn on daily wage basis, they buy ration daily but this works out to be more expensive for them. Some prefer buying on monthly basis but storage is an issue for some families.
- Vegetables are bought fresh every evening.
- People often don't do any savings
- Children like to eat any form of "cheez", Momos, chewing gum, toffee, ice-cream, cheese balls, chowmein, *faluda* etc
- Parents often give anywhere between Rs 15 to Rs 100 to children per day. Rs 20-30 are spent in a day. Some mothers commented that at least Rs 10 per day has to be given to children.
- Suggestions given to improve the nutrition level of children: If a group is formed and procurement is done in bulk so that it is less expensive. Atta, rice can be procured at cheaper rates.
- Something can be cooked for children but it has to be priced at Rs 2-5/. Children wouldn't buy anything more expensive than that. However women themselves will not be ready to sell, they will have to talk to shopkeepers to sell. Things with a longer shelf life will be required to be sold off.

Nutritional Mapping:

Nutrition mapping was planned with the idea of identification and understanding different areas of basti and locating the places of interest:

1. Water source
2. AWCs
1. Ration shops
2. Small shops from where children bought snack/junk food
3. Vendors where cooked food was sold

This was done to understand places from where people buy ration most often, children buy food and snacks. Also, which shops have better quality of food as compared to other shops. The 3 areas covered under nutrition mapping were Khusro Nagar, Dildar Nagar and Nizam Nagar.

3.2 Research on Nutritional Practices

A small study was planned to get the in-depth information on the knowledge, attitude and practices of women while feeding their children. We tried to obtain the about the practices which were good for children and which were harmful to their health. Every community has practices which were observed, recorded and interpreted.

The following tools were prepared (Annex 2)

1. Interview schedule for mother – this included questions to gather information about mother's knowledge and practices related to breastfeeding and colostrum, complementary feeding, eating habits of children, food preferences of mother and child, buying market foods, hygiene and management of illnesses. The interview schedule was developed in Hindi.

2. 24 hour recall of the children- This was done to understand what the child has eaten in the past 24 hours in order to calculate his/her nutrient intake and compare with the RDA's to understand the deficit in child's diet
3. Food frequency questionnaire (FFQ)- The idea of conducting FFQ was to understand whether child consumes all the food groups or was there any group that family was unable to afford or ignore and they don't know its importance.
4. Food procuring pattern- This was done to get the idea how community procures the food. Was it on daily or weekly or fortnightly or monthly basis.
5. Anthropometry- To know the weight and height status of child. This was done to understand the malnutrition level and its association with the quality and quantity of food child was eating.

For the study it was planned that around 40 households would be covered 5 from each of the 8 clusters. A pilot test was conducted before finalizing the tools of research. A separate report will be presented on the research study focusing on the detailed methodology and findings, however notable points from the research have been discussed.

Breastfeeding and colostrum: Pre lacteals are often given to the newborn which are products like honey or market products like *mooli ghutti* 555. The idea to give was to clean the stomach of young children. The market product cost around Rs 13 for small bottle. It was given 4-5 times in a day. Mothers informed that earlier colostrum used to be discarded by the community members. But after so much information dissemination about its importance, women give colostrum to the children. But there still are instances where the first milk is removed and breast is cleaned before child is latched on to the breasts.

Complementary feeding: The first complementary feed was usually khichdi, mashed rice and sugar, mashed banana. Mothers usually used separate utensils specific for children. They fed the child themselves. However, the times she could not be present, food was generally provided by child's siblings or grandparents (if there). The common practice of the area was to feed breast milk upto 2 years to girl child and 1.5 years to boy child. Mothers start giving children market junk food at as early age as 6 months. The start with giving cheese balls to the children in form of powder. Often children are given biscuits dipped in milk as a feed to the child.

Market foods: As children grow up, market and outside food features more and more prominently in the diet of children. They eat a variety of food items, ranging from chowmein, maggi, biscuit, *cheez*, cake among others. Most children eat outside food at least once in a day. Families gave at least Rs 10 to children per day. This money is not only given by mothers but also other family members. Mothers said that children loved eating outside food more than they wanted to eat home cooked food.

Feed during infection: For diarrhoea, community use ORS. In case ORS was not present at home, a mixture of water and sugar is generally provided to the child. For pneumonia, take child to the doctor whenever child used to cry and cough. Different oils were used to apply along with the medicine. Some mothers breast-feed children during infection. Some mothers don't.

Cleanliness: Pets were generally not allowed inside the home. However, the basti was full of cats and mongoose which could come and waste the food. For this, food was tried to be kept covered and doors closed so that animals could not enter. Mothers reported that children bathed every day, especially in summers. Hand washing was generally done by mother before cooking and eating. Also as they informed hand washing of child was also done before giving food.

The mothers seemed aware of the importance of nutrition but the consumption of outside food overshadows the food that is cooked at home. The lack of food wasn't reported in the families of women interviewed; most mothers reported that they fed their children at least 2-3 meals with some snacks from market in between.

3.2 Capacity building with community health workers

Field observations indicated that there was the basic issue of malnutrition is the lack of awareness about health and nutrition of mothers. No one in the basti knew about the age specific nutrient requirement and the sources to attain it. Thus it was planned that the life-cycle approach would be followed where the nutrition consultant would build capacities in the area of nutrition. Health workers, health contacts, ECCD volunteers were the recipients of the trainings. The idea was to train health workers and health contacts as they meet the community often and hence are the focal point of the information for the mothers. In the life-cycle approach, issues related to nutrition in different age group were tackled. The trainings were provided into 3 different sessions:

1. Nutrition during pregnancy
2. Nutrition during lactation
3. Nutrition during early childhood (young children in age range of 0 months – 5 years)

The details about training is attached in the annexure (annex 3)

Nutrition during pregnancy

Pregnancy is the period of great physical, mental and physiological stress. It is the period of high nutritional needs, both for the mother and the child. Nutrition deprivation during this stage can lead to long term implications, especially for the newborn. Thus the health workers were trained on the following issues for two days:

1. Physiological changes during pregnancy: With the help of different experiments, volunteers were trained on the changes that take place in body during pregnancy. This included increase in energy expenditure, increase in body fluid content and decrease in haemoglobin levels.
2. Nutrition requirements during pregnancy: Health workers were trained on the increased nutrition needs during pregnancy. They were trained on the important nutrients to be focused during pregnancy (energy, protein, iron, calcium, iodine), increased quantity of nutrient requirement and cheap sources of nutrients.

3. Complications during pregnancy: Workers were informed about the complications which could be faced by the pregnant women and how can it be nutritionally managed. The complications discussed were anorexia, nausea and vomiting, diarrhoea, heartburn, constipation.
4. Myths about pregnancy related to food: discussion was done on the myths related to food during pregnancy. Women talked about the food which are allowed or restricted to be eaten during pregnancy and their relevance. The misconceptions related to the foods were discussed and resolved.
5. Healthy snack (Chirwa Namkeen) was prepared that was rich in iron, an essential nutrient during pregnancy. It was made out of low-cost healthy nutrients which could be eaten by pregnant women easily.

Pre and post tests were done to understand if there was any increase in the awareness after the training sessions. It was heartening to observe that results came about to be positive.

Nutrition during lactation

The two days training session was held with the health workers and volunteers on the importance of appropriate nutrition during lactation. During lactation, appropriate nutrition is essential both for mother and infant. For the first six months, infants are totally dependent on their mothers for their nutrition. Thus nutrition is of prime importance during these years. Workers during the trainings were trained on the following issues:

1. Breastfeeding: Information was disseminated about the breastfeeding and its importance. It was discussed that why breastfeeding is important for both mother and child. The topic was covered in the form of a guided group discussion.
2. Important nutrients to be considered during lactation: this topic was more of a lecture, where health workers were told about the important nutrients to be consumed during lactation. This included energy, protein, calcium, iron and iodine. This was a recap of what discussed in the pregnancy trainings. This helped women in better understanding and remembering through reinforcement. Low-cost and locally available sources to obtain these nutrients were also discussed.
3. Myths related to foods during lactation: This topic was covered as a group activity. Workers were asked to form a group of 7-8 people and write about the practices followed in the community related to food. They had to write about the foods that are allowed and food which are not allowed to be eaten by the lactation women. They were also asked to write the reason for same (in case they knew). After this, the discussion was carried out, where nutrition consultant tried to clarify any misconceptions.
4. Traditional foods: There are various traditional drinks and beverages in Indian community which can be consumed by lactating mothers and it has proved to be beneficial for them. These items were discussed with the group members. For example, garlic milk acts as galactagogue (help increasing the quantity of milk) or fennel water which helps in preventing constipation.
5. Demonstration of a health snack: As part of a healthy snack for lactating mothers, til ladoo was prepared which is rich in energy, calcium and iron. It was prepared from the low-cost ingredients and hence can be made and consumed by basti dwellers.

Nutrition in early childhood

Young children are especially vulnerable to malnutrition. It has also been observed in the previous work that there is high malnutrition among young children in the *basti*. One of the main reasons was found to be lack of awareness among mothers about appropriate nutrition. The two day training session was conducted with the group. The topics covered were:

1. Colostrum and breast feeding: Women were informed about colostrum and its importance. Information was imparted on the first six months of exclusive breast feeding. The importance was reinforced.
2. Complementary feeding: The information about the age of initiation of complementary feeding was discussed. This was followed by the discussion on the first feed of the child, preparation of complementary feeding, important nutrients in complementary feeding and the methods of increasing nutritive value of complementary feeds.
3. Growth monitoring: Women were informed about importance of growth monitoring charts, methods of plotting the chart and the meaning of plots on the chart.
4. Hygiene: The issues related to hygiene care and cleanliness was discussed. This session was interactive and women discussed the issues faced by the community.
5. Nutrition and important nutrients in early childhood: Discussion was done on important nutrients concerned during early childhood. This included protein (for growth), energy, calcium (for bone), iron (for haemoglobin), vitamin D, Vitamin C and iodine. There was also discussion on the important points to be kept in mind while preparing the food for children. Women also discussed the issues faced by mothers in the community regarding feeding the young children. The solutions for the problems were thought.
6. Demonstration: Low cost infant mix was prepared which could be given to young children above 6 months. The mix could be stored for a month and is simple, quick and tasty.

3.3 Mothers' group

Early childhood care and nutrition is crucial for child development. Many young children are malnourished in the *basti*. More than the malnutrition, many additional children are at the at-risk. In the *basti*, it was observed that there is no dearth of food in terms of food security. People are not in the hand-to-mouth situation. Mostly people are able to afford food. Those who are not, can easily access food from the mosque/ *dargah* present in the *basti*. Food is being distributed freely in the *dargah* all the time by the followers. The main reason observed in the *basti* that maybe the cause of the under-nutrition or children at-risk was the fact that children eat lot of junk food outside home. Many mothers were also lazy to cook for the children (as informed by health workers and health contacts). They give money on daily basis to children to go out and eat. Children eat all kind of open foods like momos, pakodas, chaat, samosas, laddoo, burger, sandwiches available at the *thela-wallas* and *parchun ki dukan* (local grocery shops). They also eat packed foods like chips, chocolate, aerated beverages, supari etc. It was disheartening to observe that children were also consuming unhealthy things like *paan*, *supari* and *churan*, *khata meeta laddoos*.

A few mothers in the basti powder the chips and give it to young children who were unable to chew. Some other mothers used to give chips like *kurkure* in young children's hand so that they keep sucking it and stay busy. Mothers give tea to young children as a feeder (as bottled milk).

Since junk food was so prevalent in the basti which was unhealthy as well as unhygienic, it was planned to prepare some low cost healthy, hygienic and nutritious food items which could be sold in the community. A group of interested and pro-active women was created to prepare few food items that could be prepared in bulk and sold.

Conceptualization of the idea

During the training and focus group discussion, the need was identified about developing low cost healthy snacks for children. Many ideas were discussed about the food items that are eaten by children in the basti and can be converted into a low cost and nutritious snack. Few of the ideas that came up during discussion with women were:

1. Ladoo: Children consume all types of *ladoo* like *besan*, *atta* etc in the basti. To make it nutritious, *til ladoo* or sprouts *ladoo* were thought about.
2. Chips: Consumption of chips was very high in the basti. Children consume both branded and unbranded chips. To make something in comparison to chips which is nutritious and healthy, idea of *Chirwa namkeen* was conceptualized.
3. Barfi: As informed by women, children enjoy eating sweets. So sweets like barfi, chikki could be prepared. Thus peanut *barfi* and peanut toffee was thought of the items to be attempted.
4. Chaat: As observed at the basti, many school children eat the local unhygienic *chaat* sold outside the school during the lunch breaks. It is without any nutrition, prepared un-hygienically and sold in a newspaper packaging. Thus it was planned to attempt a freshly prepared nutritive *chaat* to be sold outside the school during lunch hours.

Few other ideas which came up were *momos*, *matthi*, *samosa*, *pakoda*, *chowmein*, *dal ladoo*, *biryani* etc. These ideas were not considered because either they were hard to prepare or were non nutritious. Also, there was an issue of packaging and storage of these food items. Or if to be sold, they have to be prepared fresh all the time.

Identification of women

Once ideas were generated on what food could be prepared to be sold, few group discussions with mothers of basti were done to identify few mothers that were really interested in taking the cooking of food items forward. Only the serious candidates were chosen and were informed about the ideology and aim of the creation of this women group. The primary aim was to provide few healthy snacks options to young children. The secondary aim was to develop the profitable venture for the women so that they can earn their living from it. Mothers were informed that this may not be profitable at the start and they may not get the financial benefits in return of the labour they put in. After all the discussions, mothers which remained were collated to form the group. The only consideration was given while finalizing the group members was the fact that women should not be involved in any other work to earn her living. This was taken as the consideration because the availability of the women was the top

priority. Else, later women may not be present when required for cooking. In all, 11 women formed the part of the group.

Pilot preparation of the listed food items

When the women agreed to be the part of the group, the next step taken was piloting the preparation of food items which were discussed with mother to be prepared. The idea was to understand the foods which were practical to prepared, were cost effective and were accepted by the community.

For the pre-pilot preparation, the consultant tried preparing on her own for the taste acceptance by the group members. Also, so that group members get the idea on what are they preparing. Few ideas were negated at the pre-pilot level itself because it didn't taste well and the shelf life was expected to be poor. The food items that were prepared by the consultant and which were accepted and not accepted:

Accepted	Non-Accepted
Til ladoo	Sprouts ladoo
Chirwa namkeen	Nutritious infant mix
Peanut barfi	
Chana chaat	

Once the taste was accepted by the group members, health workers, health contacts, the pilot preparation of the accepted food items was done. For cooking, the steps followed were:

1. List of ingredients and its procurement: The list of ingredients was prepared. The materials were initially procured from the nearby cheap shop around the basti. The ingredients were procured from the comparatively economical shop to get the idea how cheap food/ snack can be cooked. The list of the items along-with the cost can be found in annexure (annex 4a).
2. Procurement of gas, cooking stove and utensils: This was a big challenge. The gas and the stove were not available and such bulk cooking at the home of the group members was not possible. Thus for initial cooking, these things had to be rented. However renting escalated the cost of the products.
3. Space for cooking: The third step was the identification of the place where cooking can be done. After brain storming session, an open area available at the polyclinic was finalized. It had a source of water too for washing. There was a space for storage of food items (both cooked and raw).
4. Cooking: For the cooking, all the members were called. Different women were assigned different task, like roasting to a few, grinding to other, sieving, chopping, packaging etc. The cooking took 3 days. Each day around 3-4 hours were spent in cooking and packaging. The amount that were cooked and the recipe of the snacks can be seen in annexure
5. Packaging: Once cooking was done, food items like *ladoo*, *barfi* and *namkeen* were packaged into plastic air tight bags to be sold. Women did cooking and packaging simultaneously. Initially sizes of the *ladoo* and *barfi* varied a little. However, standard size was maintained for *namkeen* and *chana chaat*.

6. Costing: After, food was packaged, based on the quantity prepared, cost of raw materials, cost of labor and adding slight profit, the cost of the food items was finalized. The cost finalized was as follows:

Item	Price (Rs)
A pack of <i>chirwa namkeen</i>	5
Small <i>ladoo</i>	3
Big <i>ladoo</i>	5
Peanut <i>barfi</i>	7
A small bowl of <i>chana chaat</i>	5



Pilot testing

The food was prepared with the idea of developing healthy nutritious snack for the children. Thus the children were taken as the pilot population. The food pilot testing was done with the school children. The testing was done in the terms of taste, look, colour, smell and the cost. Of the 40 children who participated in the pilot testing, 35 had favourable responses to the *chidwa*, 3 children did not like the smell and only 2 children did not like the taste. Overall it was a positive response; the smell was of curry leaves which were removed from the list of ingredients.



Pilot selling and community acceptance

After the food was pilot tested among children, the bulk food items were sold first at the annual mela held from 30th November to 2nd December 2012. The stall of food was set at the mela and the food items were sold there for the first time. It was observed that there was high acceptance of *til ladoo* and *chirwa namkeen* by the people. Peanut *barfi* was liked little less by the people or maybe because the prices were kept high. *Chana chaat* was also well received by the people.



Women were involved in cooking and selling of food items during the *mela*. After the products were sold for 3 consecutive days, the sales were documented. (Annex 4b)

After the observation from mela, it was decided that at the first step *til ladoo* and *chirwa namkeen* will be made and sold at the local grocery shops.

Nutrition in Til ladoo and Chirwa Namkeen:

Til Ladoo: Til ladoo is low cost nutritious food. Til (Sesame) is a rich source of calcium, important for bone development. Bone development is very important among children. Til ladoo is made up of Til and gud (jaggery). Jaggery is a low cost and good source of iron. Thus til ladoo seemed an apt snack for children.

Chirwa Namkeen: Chirwa Namkeen was well thought snack with combination of food items.

- Chirwa: It is a flat rice rich in iron which is very important for haemoglobin
- Peanuts: Rich in calcium, protein and good source of fatty acids
- Chana dal: It is rich in protein and calcium
- Lemon: Rich in vitamin C, enhances iron absorption too.

3.4 Bulk Procurement

As part of the interventions planned, it was thought that bulk procurement of few items would be done which can reduce the overall cost of the food items. For example, if each household consumed 20 kg wheat in a month and one kilogram in the market was available for 20 kgs, it was thought that one can procure for 100 households simultaneously, increase the amount from 20 kilograms to 2000 kilograms. If 2000 kilograms would be bought together, it was assumed that there would have been 2 advantages:

1. Food can be bought from a distant place of the basti where the quality is good and is available at cheaper rates
2. When food is bought in the bulk, there are chances of negotiations and hence food can be procured at way too cheaper rates than the normal rates.

For this purpose, few shops were visited in the Bhogal area (which is close to Nizamuddin Basti) to identify the cost of the wheat flour, rice, and chana dal. The shops and the price of food items were as follows:

Shop name	Wheat flour (Rs/kg)	Rice (Rs/kg)	Chana Dal (Rs/kg)
Keshav flour mill	19-20	19.50	67
Kundan Lal Mehar Chand	17.50	20	54

When information was sought on the price of wheat in the basti, it was identified that wheat was already provided by the government at the subsidized rate of Rs 15 per kilogram. It was very tough to reduce the cost of wheat further than Rs 15.

It was thus thought that further research is required to cut the cost of the food commodities and it would interesting to know the rates of food prices at the *mandi*. If there is a substantial difference, bulk

procurement of the food items can be done which will impact the savings which can be done by the family.

Section 4: Next Steps

- Strengthening of mothers' groups will be done to include more low cost nutritive items which appeal to children. The mothers' group will be strengthened not only in their skills to prepare the low cost items but also their knowledge about healthy eating practices and behaviours. The group will act as a mothers' support group where mothers support each other for technical information.
- Systematic counselling with mothers through thematic group meetings will be done cluster wise to enhance the understanding of mothers and other family members on nutrition and its impact on holistic development of children. The community health team was trained this year towards this end. They will anchor the process of counselling.
- Continued growth monitoring will be done to monitor children's weight and do an assessment of impact of counselling and provision of low cost nutritive items on the health of children.
- Mothers' group to procure ration not only for production of the low cost nutritive items but also for procuring food items of everyday use. Mothers can collectively buy bulk food items so as to bring down the cost of food procurement per family.
- Preparation of resource manual will be done on the basis of the trainings done this year as well as counselling aids prepared.
- A detailed report on the research study conducted on the food habits of families with children under 6 years of age will be prepared for use in planning the nutritional interventions as well as for dissemination.

Section 5: Annexure

ANNEX 1: Guidelines for FGDs

Guidelines for cluster FGDs on Nutrition and Self Help Group formation:

Purpose: To introduce the members of the cluster to the nutrition related interventions being initiated in the basti

Meeting location: MCD Polyclinic

Number of participants: 15 participants from each cluster

Selection Criteria:

- a) 1 health worker from the cluster
- b) 4 health contacts
- c) 5 mothers of underweight children (who are self motivated)
- d) 5 mothers of healthy children (who are self motivated)

Method: Two separate meetings will be held with same group of participants one related to nutrition and another related to self help group formation.

Before the meeting, Nutrition Mapping of each cluster will be done along with the community health workers and contacts to understand what all are the places for food procurement. The mapping will point out government ration shops, open food shops, meat shops, milk shops, AWC, bakeries, vendors, weekly market, open spaces

Themes of the meeting:

Nutrition related

- Warm up activity
- Why are some children in the basti healthy and why are some children in the basti not healthy? Sharing the growth monitoring data with the participants.
- Discussion on issues surrounding nutrition such as ;
 - Availability: ration shops, ration card, shops being opened or closed
 - Affordability: do they have resources to cope up with the high increase of prices
 - awareness of linkages between health and nutrition
 - awareness regarding health eating practices.
- In cases where, people are unable to afford good nutritious food, what measures do they take to prevent themselves from lack of food?
- Where is the food bought from? (Ration shop, local market, procurement from outside)

- What is the quality of food available from each of these shops? Use of parameters such as cleanliness (adulterants like stones, *keel*), amount weighed, freshness (for vegetables), percentage wastage.
- What is the cost of commonly available food items in the basti. Which are cheaper and expensive varieties within them?
 - Pulses/ Daals – like channa daal or masoor dal (do they use kesari dal?)
 - Rice
 - Atta – do they add ingredients like soya or other products while getting atta prepared?
 - Vegetables
 - Mutton/Fish/Chicken/ egg- cheaper cuts of fish/ mutton
 - Dairy Products- cow milk/buffalo/goat milk (toned, double tones, skimmed); open/ packed
 - Fat
 - Spices and condiments
 - Dry fruits
 - Sugars and jaggery
- Does food in basti also come from villages where you live? If yes, how often?
- What are the kinds of food children like to buy? (ask separately for open foods, closed packs and toffees on which they munch)
- Discussing the possibility of participation in the research on food habits by the participants of the meeting (other than the health workers as they will be conducting the research). Linking with growth monitoring
- What according to them are nutrition related interventions which are required in the basti?

We can also ask mothers of healthy children if they do any specific things to ensure good health of their children. If they would like to share their experiences about the same.

Self help group related

- Recap
- Inviting someone from INSHA and they introduce what a self help group is and how it functions.
- *Present our the idea of making a self help group for developing nutrition linked self help group to the women*
- Discussing how much time will be required per week/per month for this activity
- Asking what the possible food items are they can make from what is commonly available?
- Is it possibility to procure less expensive food items from any other place, for instance nearby *mandi* etc?
- To ask whether mothers will be interested in creating a self help group which may not be profitable initially, but might leads to employment in case it becomes successful.

ANNEX 2: Tools for Research

Interview Schedule with mothers

हुमायुं का मकबरा-हजरात निजामुद्दीन बस्ती-सुन्दर नर्सरी

शहरी नवीकरण पहल

छः साल से छोटे बच्चों के परिवारों की खान-पान की आदतों पर शोध

□ इनकारी

माँ का नाम -

.....

पता

परिवार वालों संख्या

6 साल से छोटे बच्चों की संख्या

क्र. सं.	बच्चे का नाम	उम्र (साल और महिना)	कद	वजन

1. पहला पीला गाढ़ा दूध और स्तनपान (इन् सवालों का वाब सब से छोटे बच्चे को ध्यान में रख कर दीजिए)

1.1. आप ने अपना दूध कब से पिलाना शुरु किया?

पैदा होने के एक घंटे में

पैदा होने के दो घंटे बाद

अगले दिन

कुछ और.....

1.2. क्या आपने ने अपना पहला पीला गाढ़ा दूध बच्चे को दिया था?

हाँ ना

1.3. क्या आपने पीले दूध से पहले कुछ खिलाया था?

हाँ ना

घर में बनी चीज़ें.....

बाज़ार की चीज़ें

1.4. बच्चे को दिन में कितनी बार अपना दूध पिलाते हो?

1.5. किस उम्र तक आपने बच्चे को अपना दूध पिलाया? (अगर बच्चे ने दूध पीना छोड़ दिया हो)

1.6. क्या दूध पिलाने में कोई दिक्कत होती थी?

1.7. अगर काम पर जाना पड़े तो बच्चे को दूध कैसे पिलाती हो?

2. माँ का दूध छोड़ना और ऊपरी खाना खिलाने की शुरुआत

आप ने बच्चे को ऊपर का खाना खिलाना कब शुरू किया? क्या-क्या खिलाना शुरू किया?

उम्र	पतला (दाल का पानी ऊपर का दूध, चाय, प्लस, बोतल का दूध)	कितनी बार	गाढ़ा (मसला हुआ केला, घुटी हुई दाल)	कितनी बार	पक्का (चावल, रोटी, बिस्कुट, फेन, पापे)	कितनी बार
6 महीने से पहले						
6-9 महीने के बीच में						
9 महीने और एक साल के बीच						

एक साल के बाद						
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और कोई □ नकारी

3. खाने पीने की आदतें (2 साल से 6 साल तक के बच्चों के लिए)

3.1. आप का बच्चा दिन में कितनी बार खाना खाता है ? किस समय खाता है और क्या खाता है? (ये सवाल उन बच्चों के लिए हैं □ माँ का दूध नहीं पी रहे हैं)

खाने का नाम	समय	क्या खाया

3.2. क्या इन में से बच्चा कुछ छोड़ता है?

3.3. दिन में कितनी भी बार बच्चा खाना खाता है, उन में से कितनी बार आप या कोई बड़ा खाना खिलाता है?

3.4. बच्चा खाना कैसे खाता है? (अपने बर्तन में, भाई बहन के बर्तन में, माँ बाप के बर्तन में)

4. **बच्चे की पसंद**

4.1. आपके बच्चे का मनपसंद खाना क्या है?

4.2. आपके हिसाब से बच्चों की सेहत के लिए क्या अच्छा है?

4.3. क्या ये सब आप बच्चों को खिलाते हो?

4.4. आप क्या करते हो अगर बच्चा खाना न खाना चाहे या उससे भूख कम लगती है?

5. **बाहर का खाना**

5.1. आप बच्चे के लिए घर के बाहर का क्या-क्या खाना खिलाते हो?

5.2. क्या आप बच्चे को बाहर से खाना खरीदने के लिए पैसे देते हो? अगर हाँ तो हर रोज़ हर बच्चे को कितना पैसा देते हो?

5.3. क्या बच्चा नाश्ता , दिन का या रात का खाना बाहर से खाता है?

5.4. बच्चा बाहर से क्या-क्या खरीद कर खाता है?

पैकेट में मिलने वाला

ठेले या रेड़ी पर मिलने वाला

5.5. क्या आपके बच्चे का नाम आंगनवाड़ी में लिखा है?

हाँ ना

5.6. क्या बच्चे को वहां से खाना मिलता है?

हाँ ना

5.7. क्या बच्चा वह खाना खाता है? अगर नहीं तो क्यों नहीं और उस खाने का क्या करते हो ?

6. साफ़ सफाई

6.1. क्या आप खाना बनाने से पहले या बच्चे को खाना खिलाने से पहले हाथ धोते हो ?

हाँ ना

6.2. क्या खाने से पहले बच्चे के हाथ धुलवाते हो?

हाँ ना

अगर हाँ तो किससे

पानी से साबुन पानी से

6.3. आप बच्चे के नाखून कितनी बार काटते हो ?

6.4. क्या आपके घर में कोई पालतू जानवर हैं? क्या वो रसोई में आ सकते हैं?

7. बीमारी में बच्चे की देखभाल

7.1. दस्त लगने पर खाना खिलाया जाता है ? अगर हां तो क्या, अगर नहीं तो क्यों नहीं?

7.2. पसलियाँ चलने पर खाना खिलाया जाता है क्या? अगर हां तो क्या, अगर नहीं तो क्यों नहीं?

7.3. जब आप बीमार हो तो बच्चे को अपना दूध पिलाते हो ?

7.4. जब बच्चा बीमार है तो अपना दूध पिलाते हो ?

7.5. बीमारी से बचने के लिए कुछ ऐतियाद बरतते हो ?

Break fast						
Mid morning						
Meal & time	Menu	Household measure of each dish	Ingredients of the dish	Raw amounts (g)	Consistency Dry, thick, medium, thin	Duration (for breast feeding)
Lunch						

Tea						
Dinner						

Post dinner						

FOOD FREQUENCY QUESTIONNAIRE

Fill for children between 6 months- 3 years and whole family

Please tick (√) in the table given, the frequency of consumption of various food items.

Food items	Daily (no of times)	Weekly (no of times)	Monthly (no of times)	Never	Remarks (form in which food is consumed)
Cereals					
Atta					
Rice					
Dalia					

Food items	Daily (no of times)	Weekly (no of times)	Monthly (no of times)	Never	Remarks (form in which food is consumed)
Suji, Maida					
Chirwa					
Any other (specify)					
Pulses					
Whole Pulses (sabut- Chana, soybean, rajmah etc.)					
Dehusked pulses (Dhuli dals- Moong, Arhar, Urad etc.)					
Besan					
Soyabean					
Nutri vadi					
Any other (specify)					
Vegetable					
Green leafy vegetables					
Yellow & orange vegetable (pumpkin, carrot, etc)					
Roots & tubers (potato, arbi, onions etc)					
Any other (specify)					
Fruits					
Banana					

Food items	Daily (no of times)	Weekly (no of times)	Monthly (no of times)	Never	Remarks (form in which food is consumed)
Citrus fruits (orange, guava, lemon)					
Orange and yellow fruit (mango, papaya)					
Any other (specify)					
Milk & its products					
Milk (cow, buffalo, mother dairy, token, toned, double toned, skimmed)					
Curds					
Paneer					
Milk powder					
Cheese					
Any other (specify)					
Meat and Poultry					
Egg					
Chicken					
Fish					
Mutton					
Any other (specify)					
Oils					
Vegetable oil (specify)					

Food items	Daily (no of times)	Weekly (no of times)	Monthly (no of times)	Never	Remarks (form in which food is consumed)
Mustard oil					
Desi ghee					
Vanaspati ghee					
Butter					
Any other (specify)					
Sugar					
Sugar, jiggery, honey					
Jams / Jellies / Marmalade					
Any other (specify)					
Miscellaneous					
Biscuits					
Bread					
Cakes					
Rusk					
Fan					
Chips / Wafers					
Magi/ Noodles					
Cold drinks					
Chocolates					
Ice-cream					

Food items	Daily (no of times)	Weekly (no of times)	Monthly (no of times)	Never	Remarks (form in which food is consumed)
Pakora, Samosa etc.					
Namkeen					
Matthi					

Food buying pattern

Product	Daily	Weekly	Fortnightly	Monthly	Gifts (from village)	Food from ration shop
Cereals						
Wheat						
Rice						
Pulses						
Dehusked						
Whole pulses						
Vegetables						
GLV						
Roots and tubers						
Others						
Fruits						
Banana						
Others						
Milk						

Oils						
Sugar						

ANNEX 3: Capacity Building sessions

Part 1: Pregnancy

Session 1

The morning session was initiated with an introduction of the participants. This was followed by a number of activities as mentioned below:

Activity 1: Pre-test assessment

After the introductions, all the participants were given pre test questionnaires to assess their current awareness nutrition related issues during pregnancy. The analysis of this pretest is given in annex 2.

Activity 2: *Garbavastha kya hoti hai?*

The participants were asked by the facilitator that what is pregnancy and what are some of the changes that occur. Some of the responses are as follows:

- *Pet badhna* (Enlargement of abdomen)
- *Dil ghabarata hai* (Feeling of nausea)
- *Khana pachta nahi hai* (Indigestion)
- *Chaati badhti hai* (Breast enlargement)
- *Chaal badalti hai* (Change in gait)
- *Periods ruk jaate hain* (Amenorrhoea)
- *Neend bahut aati hai* (Changes in sleeping patterns)

It was further elaborated by the facilitator that few more changes occur which was explained through following demonstrations:

1. A volunteer was asked to walk across the room and asked how she felt. Then she was handed a set of heavy books and was asked to walk across the room again. She was then asked if there was any difference in the two. After a little probing it emerged that more energy was required while walking with a heavy weight.

Facilitator then explained that during pregnancy, there is an increase in energy expenditure as a woman is carrying a foetus in the womb which means higher calorie intake is

necessary. A participant commented that diet needs to be doubled as the weight is increasing, however the facilitator clarified that meals should increase but not doubled for instance, if she is consuming 5 *chapatis* in a day prior to pregnancy, the number should increase to 7 and not doubled.

- Next demonstration pertained to change in blood composition in the body during pregnancy. A jar with red coloured water was shown to the participants. It was referred as blood during pre-pregnant state. Then a wider jar of same length with some water was taken and the earlier jar was emptied into it. Participants were asked about what they observed. It was then discussed that during pregnancy, blood volume increases but haemoglobin content remains the same, therefore to compensate, iron intake needs to be increased which can be obtained through consumption of iron rich foods as well as supplements. The need for haemoglobin in the blood was also discussed. Haemoglobin is essential to transfer food as well oxygen in the body, during pregnancy if haemoglobin levels remain low then the nutrient and oxygen requirement of the foetus will not be met.

Activity 3: Nutritional requirement of the body

The participants were divided into four groups, each group was asked to write food items from which following can be obtained:

- Group 1: Energy (Urja/Takat)
- Group 2: Protein
- Group 3: Iron (Loha)
- Group 4: Calcium

Each group presented the information they had put together, shown in the table below:

Energy	Protein
<ul style="list-style-type: none"> - Energy is required for development of mother and child - Food items which are rich in energy include: Milk, curd, meat, fish, sprouted pulses, folic acid tablets, iron and calcium tablets, <i>roti</i>, fruits, vegetables, butter, <i>desi ghee</i>, pulses, and cottage cheese - Meat was considered as a major source of energy 	<ul style="list-style-type: none"> - Protein is required for energy and building muscle mass. - Pulses (<i>daal</i>), peanuts, <i>channa</i>, corn, meat, fish, <i>sabautdana</i>, butter, ghee, fruits, vegetables, soya bean, cereals, potato, dry fruits.
<p>The facilitator explained that energy is obtained from three sources: carbohydrates, protein and</p>	<p>The facilitator elaborated on each food item and clarified which were sources of protein and which were not. She emphasised that soya bean and sprouted pulses are the best sources of protein. Fruits and vegetables are poor sources of protein. She also explained that following</p>

<p>fat. Each is obtained from different food items. Main sources of carbohydrates are all cereals while fat is obtained from ghee, oil, butter. She also explained that iron and calcium, though very important, do not provide energy. They play a different role altogether.</p>	<p>items are not sources of protein but are rich in other nutrients.</p> <ul style="list-style-type: none"> - Corn: rich in carbohydrates - Cereals: rich in carbohydrates - Dry fruits: rich in antioxidants and fat - <i>Sabudana</i>: rich source of energy - Potato: rich in carbohydrates - Butter and ghee: rich in fat
<p>Iron</p> <ul style="list-style-type: none"> - Iron is required for formation of haemoglobin which then provides oxygen and food to the foetus. - It is found in banana, roasted <i>channa</i>, milk, <i>daal</i>, <i>gur</i>, egg, meat, fish, <i>paneer</i>, sprouted pulses, spinach, potato, pumpkin. <p>The facilitator explained that the fruits which turn black due to oxidation like banana and apple do not contain iron. Instead they are highly rich in vitamins which help body to fight infections. It's a prevalent myth. All green leafy vegetables are very rich in iron. <i>Gur</i> and roasted <i>channa</i> are cheap and rich sources of Iron.</p> <p>Government provides free Iron tablets to pregnant women (<i>laal rang ki goli</i>) which is to be consumed for 90 days, starting from second trimester.</p>	<p>Calcium</p> <ul style="list-style-type: none"> - It is needed for formation of bones. It is found in milk, eggs, spinach, fresh coconut, curd, ice cream, <i>paneer</i>, green vegetables, almonds, banana <p>The facilitator explained that all white coloured food items are not rich in calcium. Milk and milk products are rich sources of calcium. Green leafy vegetables are rich in calcium. <i>Sem ki phalli</i> is a good source of calcium. All bones are rich sources of calcium; they can be boiled with water after proper cleaning and be consumed. <i>Paaye</i> are specifically rich in calcium.</p> <p>Calcium tablets should always be consumed along with milk for better absorption but same principles cannot be used for iron tablets. They are to be consumed with water on an empty stomach in the morning.</p>

Care during pregnancy is an essential area of discussion which was taken up by the facilitator. Following are some of the points to be kept in mind during pregnancy:

- Quantity of food should be greater than the normal state. However food should be consumed more frequently. For instance, if a woman consumed 9 *chappatis* before pregnancy, she should consume 12 during this period.
- Total weight gain during pregnancy is 10-12 kgs. During 1st trimester, weight should increase by ½ kg every month. In second trimester, weight should increase by ½ kg every 15 days. And in the last trimester it should increase by ½ kg every 7 days. In the last trimester fat deposition takes place in the child's body which the reason for increased weight gain.
- A pregnant woman should rest for at least 10 hours (8 hours in the night, 2 hours during the day)

- Smoking and drinking are completely prohibited.
- Tea/coffee should be consumed 2 hours before or after food. The reason being it hampers the absorption of essential nutrients in the body.
- Water should be consumed in adequate amounts. This helps in removing toxins from the body.

The facilitator then dealt with each nutrient separately to clarify the concepts discussed earlier. Some of the points covered are as follows:

Urja/ takat

- It is obtained from 3 different nutrients i.e. carbohydrates, proteins and fat.
- Rich sources of energy include all cereals; sprouted pulses, *chidwa*, fermented foods such as *dhokla*, *dosa*, *dahi*, *idli*, though fermentation should not be done with soda-bi-carb.
- Sprouted pulses are 80 % digested by the body. It is also a rich source of Vitamin C which protects body from illness.
- Combining *channa atta*, *jowar atta*, *soyabean atta* to regular flour enhances its nutritive value.
- Too much fat should not be consumed during pregnancy as it leads to weight gain.

Iron

- Green leafy vegetables, mutton, *chidwa*, *gur* are some of the rich sources of iron.
- Iron obtained from mutton is easily absorbed by the body however since it has high fat content, it should be consumed in minimal quantities.
- *Dhaniya-Pudina* chutney is a cheap and rich source of iron. Adding lemon increase the absorption of iron in the body.
- A slight grey shade to *chidwa* is indicative of better iron content as compared to pure white coloured *chidwa*.
- An anaemic pregnant woman should consume two iron tablets during the day as compared to one tablet for non anaemic pregnant woman. Less than 11 gram % Haemoglobin is indicative of anaemia during pregnancy.

Calcium

- Rich sources are milk, *paneer*, *dahi*, pulses, cereals, green leafy vegetables, bones. Meat, egg, *sem ki phalli*, *gvar ki phalli*, lotus stem are also rich sources.
- For better absorption of calcium, vitamin D is essential which can be obtained from sunlight.

Iodine

- It is crucial for brain development of the child
- This is primarily obtained from Iodized salt, sea water fishes.
- The symbol of iodized salt is a "smiling sun". One should take care to buy packaged salt with this logo.

At the end of this session a visual depiction of food pyramid was presented to the participants. The facilitator explained how each food item is to be consumed in appropriate amounts to make it a balanced diet. (Refer to Annex)

Session 2

Activity 1: Minor ailments during pregnancy

Four groups were formed, each group was asked to write what should be done for following ailments:

- Group1: Loss appetite
- Group 2: Vomiting
- Group 3: Heartburn
- Group 4: Constipation

Each group was then asked to present it to others. Following table shows some of the responses given by the participants along with facilitator's explanation for the same.

Minor ailment	Participant's responses	Explanation by facilitator
Loss of appetite	<ul style="list-style-type: none"> - Eat sparingly - Seek medical opinion - Eat fruits and green vegetables - Drink lime water 	<ul style="list-style-type: none"> - Eat sparingly but eat frequently - Drink a lot of water - Take a walk after eating - Consuming protein rich diet as it eases digestion
Vomiting	<ul style="list-style-type: none"> - Drink lime water - Eating dry food items on waking up - Avoiding oily, fatty, spicy food - Consume <i>saunf</i> or lemon - To prevent dehydration, consume more liquids 	<ul style="list-style-type: none"> - Consuming dry food items in the morning such as bread, toast, biscuit - Eat sparingly but eat frequently - Drinking a lot of water - Avoiding nauseating food - Avoid spices, oily food - Avoid coffee - Drinking lime water helps
Heartburn	<ul style="list-style-type: none"> - Avoid fried foods - Consuming cold food items like milk, curd - Going for a walk - Avoiding tea/coffee 	<ul style="list-style-type: none"> - Should not sleep immediately after eating as it increases probability of heartburn
Constipation	<ul style="list-style-type: none"> - Avoid fried foods - Going for a walk 	<ul style="list-style-type: none"> - <i>Isabgol</i> contains fiber which can be obtained from food item also

	<ul style="list-style-type: none"> - Avoiding tea/coffee - Consume Isabgol - Consume green leafy vegetables - <i>Hing</i> should be consumed 	for instance green leafy vegetables, whole cereals and pulses, jack fruit and lotus stem.
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Activity 2: Food related myths during pregnancy

Participants were divided in two groups. Each group had to write about advised food as well as prohibited foods during pregnancy. The responses and facilitator's comments are as follows:

Prohibited foods	
Participant's responses	Explanation by facilitator
Papaya is prohibited as it leads to abortion	Ripe papaya is ok for consumption but not raw papaya because raw papaya has elements which may lead to abortion
Pineapple; leads to abortion	There is no proof to this conception till now
Egg; should not eat in first trimester because it is considered to be hot	Cooked egg should be consumed; raw egg may lead to infection
Fish; it is hot	Fish contains mercury which can be harmful, however it can be consumed cleaning and cooking it properly
Tea/coffe; it is hot	It should not be consumed as it reduces appetite, not because it is hot
Meat; it is hot	Meat can be consumed after cleaning and cooking it properly. The quantity should be less as it has fat
<i>Saunth, ajwain,</i> ; its hot	
Spinach; because it may turn child green	It HAS to be consumed because of iron and calcium content
Iron and calcium tablets; a dark child will be born	They must be consumed. Child is dark because of his/her genetic make.
Jackfruit; is hot	There is no proof for this
Sesame oil; its hot	It should not be consumed because it increases uterine contractions, not because it is hot
Gur; its hot	It should be consumed, also adding roasted <i>channa</i> to it
Almonds; its hot	Up to 5-7 almonds can be consumed everyday
If someone gives yellow food items, they should not be consumed.	
Not allowed to consume enough food as it may	The advised amount of food MUST be

lead to birth of a heavy baby	consumed. s
Advised foods	
Participant's responses	Explanation by facilitator
Coconut; child is born fair, eyes are brown	Should be consumed because its good for digestion, especially coconut water. Child is born fair/dark because of his/her genetic make.
Banana; it leads to birth of a male child	Banana gives energy
Saunf; child gets big eyes	It should be consumed in small quantities because it may lead to constipation
Dry fruits towards the end of pregnancy leads to easy delivery	They increase uterine contractions which lead to ease in delivery.
Milk; leads to birth of a fair child	Child is born fair/dark because of his/her genetic make
In the last month mother should be given milk with ghee as it eases the delivery	This has no relation to the process of delivery.

Activity 3: Malnutrition during pregnancy

The next session conducted was on consequences of malnutrition during pregnancy. Some facts were highlighted by the facilitator.

If the mother is malnourished, the child might

- Not get enough nutrition. As a result child will not develop properly.
- Not gain enough weight
- Be malnourished as an adult
- Have weak bones leading to short stature
- Have low immunity and might fall ill often,
- Have poor mental and intellectual development

If the mother is malnourished, she might

- Feel tired and weak
- Not produce enough milk
- Fall ill often
- Have preterm and risky delivery
- Loose nutrient reserve from the body which have repercussions later

Activity 4: Revision game

As a way to review the day's learning, the facilitator devised a game where she called out names of the participants from a chit and they had to answer a question. Each participant who answered the question collectively received a prize at the end of the day.

Activity 5: Food demonstration

The day ended with demonstration of a low cost food item which was prepared in advance by the facilitator. The item prepared was a *chidwa namkeen* mix which consisted of peanuts, roasted *channa*, oil, rye, curry leaves, *channa daal* and *chidwa*. All these items were mixed together after roasting, so the resulting food item was rich in essential nutrients. The participants enthusiastically tasted the *namkeen* and felt that it can be an easy addition to the diet.

Part 2: Post Natal

Activity 1: Discussions on the issues of importance during post natal period

1) Advantages of breastfeeding

The facilitator asked the participants about the duration of breastfeeding. The participants responded that girls are breastfed for 2 ½ years while boys are breastfed till 2 years. Then the facilitator asked them the advantages of breastfeeding for the mother and the child. Responses were as follows:

- Prevents illness and increases immunity
- Provides essential nutrients
- Provides energy
- No need to boil milk (for mother)

To these, facilitator added certain points, which are as follows:

- *Maa ka pehle gadha doodh bacche ke liye tike ke kaam karta hai* (Acts as first immunization for the child)
- *Dast se bachata hai* (Prevents diarrhoea)
- *Bacche ke liye pachana aasan hota hai* (Easily digestible)
- *Navjaat shishu ke pehle 6 mahine tak sampurn aahar hota hai* (Is complete food for the child)
- *Bacche ke sharirik aur mansik vikas ke liye zaruri hai* (Important for mental and physical development)
- *Bacche ko bimari se jaldi theek karta hai issliye dast mein bhi maa ko doodh pilate rehna chahiye* (Continuous feeding helps in early recovery from any illness)
- *Maa aur bacche ke beech gehra rishta kayam karta hai* (Develops a bond between the mother and the child)
- *maa ko garbh hone ki sambhavna kam hoti hai* (reduces possibility of conception)
- *delivery ke baad maa ka vajan kam karne mein madat karta hai* (helps in reducing mother's weight gained during pregnancy)
- *upari doodh mehenga hota hai, issliye paise ki bhi bachat hoti hai* (Saves money)

2) Increase in the food requirement

Further it was discussed that in the post natal period, mother should eat one time more than the usual diet. It was believed by the participants that if the mother drinks milk she will be able to produce more milk. This point was clarified by the facilitator as she explained that mother needs to eat other calcium rich food besides milk to replenish calcium lost in her body. If mother does not consume calcium rich food, the child will get calcium however it will be lost from mother's bones. Calcium and iron is the most essential nutrients to be consumed during this period.

3) Nutritionally rich food to be consumed during post natal period

Mother should consume more of green leafy vegetables which provide iron, calcium, Vitamin A as well as fibre which prevents constipation. The participants said that mothers are not allowed to take green leafy vegetables for a duration of 45 days post delivery because it is believed that if mother consumes them, the child will have green stools. However an alternate was suggested by the facilitator that instead of green leafy vegetables, mother can take whole grains like khichdi, daliya, suji and atta; sprouts; soyabean; pulses; meat and fish. All these are also rich in iron, calcium and protein. Meat and fish also provide fat. Gur and channa should also be consumed which is rich in iron and calcium. Til, which should be avoided during pregnancy should be consumed during this period, as it is rich in calcium.

4) Traditionally foods avoided and consumed during post natal period (first 45 days)

The participants were asked to list out food items which are traditionally recommended or avoided during first 45 days of delivery. Following were the responses:

Foods to be avoided	Foods to be consumed
<ul style="list-style-type: none"> - Spinach - Urad daal - Cold foods (child will feel cold) - Foods with seeds such as guava, channa, corn as child may have stomach ache - Food made of <i>maida</i> as child may have stomach ache - Sour foods like banana, orange, grapes - Spicy food as child may develop heartburn 	<ul style="list-style-type: none"> - Papaya, chiku - Egg - Milk - Soup made of marrow - <i>Saunth-ajwain ka paani</i> - Suji ka halwa, gond ke laddo - Peepal ka paani for good menstrual flow - <i>Dasmullarisht</i> syrup for easy digestion of food - Desi ghee, dry fruits - Moong, masoor ki daal - Bread fried in ghee

The facilitator explained that fat consumption should go down post delivery. It was a misconception that more fat is required in the post natal period by the woman. Lot of traditional foods focused on fat consumption as compared to nutritious food which are not usually allowed.

Part 3: Infancy and early childhood

The session began with a brief recapitulation of the earlier training sessions. The mode of this session was discussion based, following were the points of discussion according to the age:

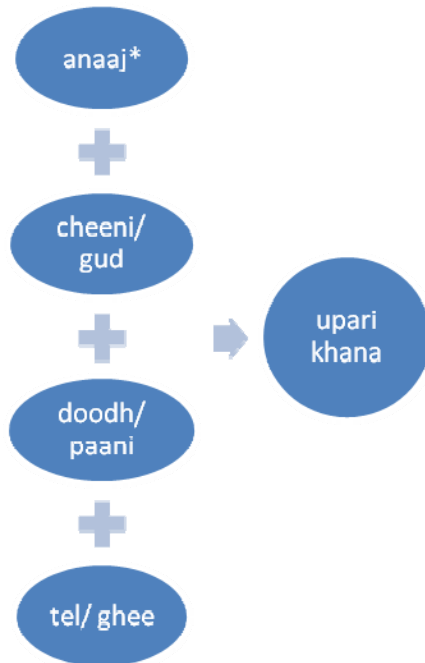
1. Infancy (*pehle 6 mahine*)

The facilitator revised the points pertaining to exclusive breastfeeding with the participants as this topic had been covered in another training:

- *Sab se pehle peela ghada doodh jise keel bhi kehte hain, tike ke saman hota hai; bimari se bachata hai; haddiyon ke liye calcium ki zarurat poora karta hai aur maanspeshiyon ke liye protein deta hai*
- *Pehle doodh mein ghutti waale saare fayade hain*
- *Kabhi kabhi ghutti se dast lag sakte hain kyunki usme jo paani ka istemal hota hai ya bartan ka jis se infection ho sakti hai*
- *Keel 1-1 ½ din tak rehata hai*
- *6 mahine tak sirf maa ka doodh pilana hai aur bilkiul bhi upar ka khana nahi khilana hai*
- *Paani dena bhi mana hai kyunki bacche ko jitney paani ki zarurat hoti hai woh maa ke doodh se mil jata hai*
- *Bacchon mein bimari hone ki sambhavna kam ho jati hai.*
- *Maa ko bhi doodh pilane ke fayade hote hain: badha hua vajan kam ho jaata hai aur sharer fit rehta hai.*

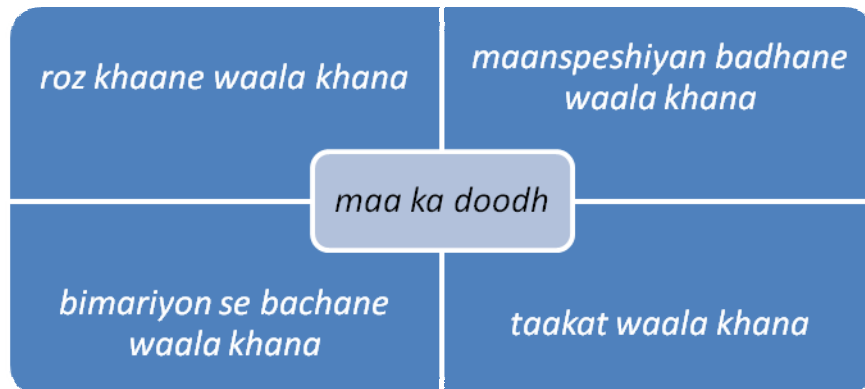
2. From 6 months to 1 year (*6 mahine ke baad; ek saal tak*)

- *6 mahine ke baad bacche ko dhore dhore upari khana khane ki aadat daalna chahiye*
- The facilitator gave a tool to the participants to remember a flow chart which would help them remember what should be the feed which can be prepared for children



**suji, daliya, aata, raagi, bhuna chawal (acche se pissa hua)*

The facilitator discussed another tool which helped participants remember the feed that can be given to children



With help of a flipchart, facilitator demonstrated foods in each of the given categories so that balanced diet can be given to the children.

After demonstration of the two tools, facilitator discussed some points which related to the feeding of children between the age of 6 months and one year. The section was divided in four parts:

Kya khilaye

- Pre mix: *Yeh aasani se bacchon ke liye banaya ja sakta hai. Ek baar pre mix bana kar usse 3 mahine tak istemal kar sakte hain. Isse ghar mein banana mein समय kam lagta hai*

Recipes for instant premix:

- 3 cups wheat flour or wheat grains/ bajra/ rice (roasted and finely ground)
- 1 cup pulses
- ½ cup peanuts/ sesame seeds
- 2-3 cups sugar or gur

These ingredients can be roasted, finely ground and stored in an airtight box. The premix can be used with water or milk.

- *Aur khaane jo bacche ko diya ja sakta hai: doodh mein roti pees kar; ubla aalo; pisa hua kela; seb, chiku ko ubaal kar usme cheeni daal kar;*
- *Uble aande ki zardi ko pees kar aur usme cheeni mila kar*
- *Agar maa kaam par jaye toh who doodh nikal kar katori mein rakh kar ja sakti hai; 24 ghante tak voh theek rehta hai aur usse garam karne ki zarurat nahi hai*
- *Kai maa ghee देने को मना करती हैं कि वो हज़म नहीं होगा पर ऐसा नहीं है। पेट ख़राब होने का कारण infection है।*
- *Agar maa alag khana nahi bana sakti toh mirchi daalne se pehle bacche ka khana nikal le. Ya doodh mein roti ko masal kar dein.*
- *Bacche ko urja den eke liye teen sabse zaruri tareeke hain:*
 - o *Patla khana*
 - o *Tel/ghee*
 - o *Cheeni/ gur*

Khana patla karne ke liye ankurit daal ko sukha kar, pees kar usse khane mein mila sakte hain. Gadhapan kam hone par bacche ko ussi khane se zyada urja milti hai
- *Inn sab cheezon ke saath dhyaan rakhna hai ki bacchon ko kisi na kisi tarhan se subziyan khilayi ja rahi hai. Jaise kaddu ubal kar dena; khichdi mein hare pattedar subziyan milana.*

Kya na khilaye

- *Biscuit na dein kyunki usme sirf maida hota hai*
- *Fan aur pappe*
- *Bahar ka khana*
- *Baasa khana*
- *Bina ubla hua paani*
- *Sirf daal ya chawal ka paani*

Kaise khilaye

- *Ek baar mein bacchon ko ek jaisa khana dein jis se swad ban jaye.*
- *Alag plate ya katori mein khana khilana zaruri hai kyunki bacche ko aadat banti hai aur maa ko pata lagta rehta hai ki bacche nein kitna khana khaya hai. Ek saal tak haath mein khana haath mein na dein.*

Kitna khilaye

- *Baccho ko kitna khana dein:*
 - o *6-9 mahine ($\frac{1}{2}$ + $\frac{1}{2}$ katori aahar aur maa ka doodh)*
 - o *9-12 mahine ($\frac{3}{4}$ + $\frac{3}{4}$ + $\frac{3}{4}$ katori aur maa ka doodh)*

3. One year onwards (ek saal ke baad)

- *Jitna khana khane ki hume zarurat hai, uska aadha khana bacche kha sakte hain.*
- *Ek saal ke baad jaisa khana ghar ke sab log khate hain waisa hi bacche khate hain*

The facilitator discussed the principles involved in feeding young children:

- *Khana khitlate samay khel*
- *Khane ko alag alag tarhaan se kaat kar aur vibhinn rang ka khana shamil karna*
- *Kam masale waala khana*
- *Ek se zyada tarhan ka khana mila kar khana (jaise kaddo ya palak ko paranthe mein milana)*
- *Aisa khana jo bacche aasani se utha sake aur apne aap kha sake*
- *Har thodi thodi dere mein khana dena*

ANNEX 4: Preparation of low cost food items

a) Raw ingredients and cost

Ingredients	Amount	Cost per unit	Cost for ingredients (Rs)
Chidwa Namkeen			
Chirwa	2000g	Rs 30 per half kg	120
Peanuts	750g	Rs 40 per 250g	120
Chana Dal	500g	Rs 40 per half kg	40
Rye	50g	Rs 15 per 100g	7.5
Oil	50g	Rs 155 per 1 liter	7.75
Haldi	10g	Rs 18 per 100g	1.8
Salt	30g	Rs 16 per 1 kg	0.5
Chat masala	30g	Rs 42 per 100g	12.6
labor	2 worker	rs 60 per 2 worker/ hr	60
TOTAL COST			Rs 5 per 50 gm
Till Laddo			
til	1 kg	Rs 150 per kg	150
Gud	2 kg	Rs 80 per 2 kg	80
labor	2 worker	Rs 60 for 2 worker per hr	60
TOTAL COST			Rs 3 per <i>laddo</i>
Peanut Barfi			

Peanut	1 kg	Rs 160 per kg	160
Besan	500 g	rs 45 per 500 gm	45
ghee	150 gms	rs 165 per half kg	50
Sugar	1 kg	rs 55 per kg	55
labor	2 worker	rs 60 per 2 worker/ hr	60
TOTAL COST			Rs 5 per <i>barfi</i>

b) Total sales which happened during pilot were:

Item	Cost per unit (Rs)	Total Units sold	Amount (Rs)
Chidwa	5	177	885
Laddo	3	420	1260
Barfi	5	70	350
Channa Chaat	5	89.8	469
			2964

approx