

6. Summary & Conclusion



CHAPTER 6

SUMMARY AND CONCLUSIONS

The young children under 2 years are most vulnerable to the vicious cycles of malnutrition, disease/ infection and resultant disability all of which influence the overall development of the child. Growth flatterings generally begins at the age of introduction of complementary foods that is 6 months. Faulty feeding practices at this age is indicated as the child being underweight (low weight for age) as an immediate effect and can lead to stunting indicating chronic undernutrition which is difficult to reverse. Undernutrition puts children at far greater risk of death and severe illness due to common childhood infections, such as pneumonia, diarrhoea, malaria, HIV and AIDS and measles. A child who is severely underweight is 9.5 times more likely to die of diarrhoea than a child who is not, and for a stunted child the risk of death is 4.6 times higher. Hence optimal child feeding practices along with prevention and management of childhood illnesses are a key to a healthy child. In view of the same the present study was undertaken with the broad objective of improving the nutritional status of tribal children between 6-36 months by educating the mothers on several targeted areas of child health, hygiene and sanitation so as to improve the nutritional status of the child and to bring down diarrhoeal morbidities in Chikhli taluka of Navsari district.

Phase I: Situational analysis

This phase involved interviewing 536 mothers with children between 6-36 months using a pretested semi structured questionnaire. Background information of the child, family and household were collected. Socio economic status of the family was assessed through education level of the parents, per capita income, possession of land, milch animals etc. Mother were asked questions to assess their current knowledge and practices regarding hygiene and sanitation, IYCF and childhood diarrhoea. Nutritional status of the children was assessed using WHO growth standards.

Background information

Majority of the children (47.6%) were in the age group of 13-24 month. Maximum percentage of families (88.2%) were Hindus. Very few (2.1%) families belonged to the upper high SES group and 43.7% belonged lower middle group. Average age of the mothers was 25 yrs and that of fathers was 30 yrs. Majority of parents attended higher secondary school (mothers: 60.8%; fathers: 67.7%). Only 16% mothers and 7% fathers were illiterate. More than 90% mothers were non working. High percentage of families (60.6%) resided in semi *pakka* houses and 64.4% households had open drainage system. Safe source of water was used by almost all the households for all the activities.

Nutritional status of children

Prevalence of undernutrition was quite high with 231 (43.09 %) children were moderate to severely underweight, 273 (50.93%) were stunted and 136 (25.38%) were wasted. An upward trend was observed in the percentage of children suffering from underweight and stunting with increasing age.

Diarrhoeal morbidity in children

Diarrhoea was reported in 35.3% children in the past one month, of which majority, (90.5%) had watery diarrhoea, 9.5% had bloody diarrhoea and 10 children were admitted to hospital during the diarrhoeal episodes.

Environmental hygiene knowledge and practices of the mothers

Majority of mothers (71.3%) had excellent scores for knowledge on environmental hygiene. Disposing household solid waste in open was considered desirable by almost 43% mothers. Fifty percent mothers had $\leq 60\%$ score for environmental hygiene practices. The most undesirable practices included open defecation by 44.6% families and open collection and disposal of solid waste by 79.3% and 61.4% families respectively and not using any disinfectant for mopping by 63.8% families.

Food hygiene knowledge and practices of the mothers

Almost half the mothers (47.8%) scored fairly on knowledge on food hygiene. High percentage of mothers (59%) were unaware about the safe temperatures for heating leftover moist food for consumption, 50% didn't know about the safe duration of storage of cooked moist food stored at room temperature before consumption, 88.8% regarded "bulk washing only once" as the ideal way of washing fruits and vegetables and 67% believed that "warming" the stored moist weaning foods is sufficient before feeding the baby. About 79% mothers were ranked as "very good" for practices on food hygiene. Desirable food hygiene practices followed by mothers included using soap for washing utensils, washing fruits and vegetables before use and air drying of utensils after washing. The most undesirable food hygiene practices included dipping a container in stored water vessel (where hand comes in contact with water) for drawing water and consuming moist leftover food without sufficient heating.

Personal hygiene knowledge and practices of the mothers

Excellent scores were obtained by 76.5% mothers for knowledge on personal hygiene. Almost all mothers knew that washing their hands and child's hands before feeding the child is necessary. Many knew that washing hands with soap is much better than water alone as it facilitates efficient removal of dirt and germs and helps prevent diseases. Only 29.7% mother had excellent scores for personal hygiene practices. All the mothers used soap after visiting toilet and also after attending the child who has defecated. Every mother bathed daily and wore clean clothes. Only 50% mothers used soap for washing hands before feeding the child and before eating food. Insufficient use of soap was found before cooking, before breastfeeding the child and after touching raw foods.

Hygiene observations (household, mother and child)

Grading households for household environmental hygiene showed that 49% households were graded as good. More than 90% households had soap or ash at the hand washing place and had all the drinking water containers covered. More than 70% had flies either outside or inside the house. Almost 59% houses were swept during the visit but only 42.5% were mopped. 49% had garbage dumped

in their vicinity. Sixty seven percent mothers had excellent to good scores for personal hygiene observations as compared to 56.8% children.

Breastfeeding knowledge and practices of the mothers

Seventy percent mothers had poor knowledge on breastfeeding. Many mothers (68%) knew that colostrum is good for the child but only 10.6% could mention its correct advantage. Only 73.9% mothers knew that the child should be exclusively breastfed till 6 months and only 30.2% knew that giving prelactals is not good for the child. Only 45% mothers breastfed their babies within 1 hour after the birth, 77% fed colostrum and prelactals were given by 13.7% mothers.

Complementary feeding knowledge and practices of the mothers

Complementary feeding knowledge of mothers was comparatively better as 58.2% mothers were graded to have excellent knowledge scores. Almost 67% mothers knew that complementary feeds should be initiated after 6 months of age and stated the correct reason for initiating the same. Only 8.6% mothers could state different variety of foods that included all the 5 food groups as options for complementary feeds. Only 5.2% mothers were found to have excellent complementary feeding practises. Thirty four percent mothers were graded as fair and poor. Almost 74% mothers had not started CF at the right age, 81.2% children were fed by any of the elders in the family and 49% were encouraged to finish their meals and only 9.5% were force fed. High percentage (92%) of children were fed in separate vessels and 95% were fed foods from more than four food groups. More than 50% mothers prepared special foods for their children like *balbhog*, *sheera*, *raab*, etc.

Childhood diarrhoea management knowledge and practices of the mothers

Only 1.87% mothers were graded as excellent and majority, 64.37% were categorized to have poor diarrhoea cause and management knowledge. 34% mothers could state the correct cause of diarrhea and only 52% could state 1-2 symptoms. High percentage (81%) of mothers knew that breastfeeding should be continued while the child suffered from diarrhoea and 76% recommended continued complementary feeding. Forty seven percent mothers could state 1-2

food items that could be fed to the child during diarrhoeal episodes. About 68% did not know what all foods should be avoided during diarrhoea but 83.2% mothers knew about ORS. Only 51 mothers (9.5%) could correctly state the preventive measures for diarrhoea. As many as 337 mothers gave CF and BF while the child suffered from diarrhoea. Out of 337 mothers 179 prepared special foods to manage diarrhoea. Very few mothers (43) gave ORS and a similar number could state ways to prevent diarrhoea in future. Almost 90% mothers whose children suffered from diarrhoea were graded to have poor diarrhoea management practices.

Health related perceptions and practices of the mothers

Eighty percent mothers took their children for growth monitoring regularly. All the children were immunized as per the schedule at the time of interview. Almost 67% mothers believed that their child was healthy but about 32% of the children amongst them were suffering from undernutrition. More than half the mothers were unaware about the real causes of undernutrition and its serious consequences.

Determinants of nutritional status and diarrhoeal morbidities in children

Weight for age z scores of the child were affected by age of the child, SES of the family, personal hygiene observation scores of the child, health seeking behaviour of the mothers, PH knowledge scores of the mothers and age of the father. Environment hygiene practice scores of the mother, age of the child, health seeking behaviour scores of the mother, diarrhoeal morbidity in children, sex of the child were the main determinants of HAZ of the child. WHZ was determined by only 3 factors namely age of the child, SES of the family, PH knowledge of mothers

Diarrhoeal morbidities in children were determined by SES of the family, Religion of the family, Diarrhoea management practice scores of the mother, age of the child, PH scores of the child, height for age z scores of the child, personal hygiene practice of the mothers.

Phase II: Imparting Nutrition, health and food safety education to mothers.

This phase involved enrolling 100 mothers each as experimental and control group. Mothers in the experimental group were imparted nutrition, health and food safety education using a short documentary film in two sessions. Handouts/pamphlets were also distributed for reinforcing the messages. Mothers from both the groups were given a six months calendar each so that they can mark the days on which the child suffered from diarrhoea. The investigator visited all the households monthly for taking anthropometric measurements of the children for a period of 5 months. The investigator also reinforced the messages imparted through the module to the mothers from the experimental group.

Change in the nutritional status of the children

The z scores of the children in the experimental group improved significantly by high percentages post intervention. Number of children categorized as normal increased significantly from 18 to 45 in the experimental group. The WFA z scores improved by 48.44% and more improvement was found in the males as compared to females. Children in the age group of 6-12 months showed the maximum improvement of 64.52%.

Height for age z scores improved by 14.42% significantly in experimental group, but decreased in the CG. Maximum improvement was observed in the age group of 6 to 12 months. Weight for height z scores improved by 256.67% in experimental group and was maximum in the age group of 6-12 months. Nutritional status of the children in the EG improved significantly every month in terms of WAZ. Though there was an improvement in the NS from first month to the second month, but significant changes occurred only after 3 months. In contrast no monthly significant changes were observed in the CG in terms of WAZ and HAZ.

Significant differences were observed in the z scores for WAZ and HAZ of the children in the experimental and control group before and after the intervention.

Change in the diarrhoeal morbidities in children

The average number of days for which a child suffered from diarrhea in the CG (7.67) was significantly higher than in EG (5.71). More percent reduction was found in the no. of diarrheal episodes (65.88% vs 58.49) and the no. of days (69.23 vs 60.45) for which the child suffered in the EG as compared to CG.

Highly significant negative correlation was observed between nutritional status of the children with the number of diarrhoeal episodes and days in the EG as the number of diarrheal episodes and days of suffering decreased the nutritional status of the children improved. No such correlation was observed in the CG.

Change in the knowledge and practices of the mothers.

Hygiene and sanitation

The knowledge scores of the mothers improved significantly by high percentages in the EG as compared to CG post intervention for all the aspects studies. Mean KEH scores improved by 12.49% and the PEH by 3.27%. Post intervention mothers got aware that accumulated water outside the house is harmful for the health of their child and more mothers started practicing proper way of stool disposal.

The KFH mean scores improved significantly by 20.7% and the PFH by 3.53%. Mothers became aware about the safe temperatures of heating weaning foods before feeding the child and started using a pot with tap or a vessel with handle to draw from from the stored container.

The KPH scores also improved significantly by 5.77% as more mothers got aware that washing hands with soap is better than washing with water alone. The PPH mean scores showed a percent increase of 6.76%. Maximum improvements were observed in number of mothers washing their hands before cooking (19.33%) and before feeding their child (28.21%).

IYCF and childhood diarrhoea

The breastfeeding knowledge scores of the mothers improved significantly by almost 100%. More mothers got to know the importance of colostrum and that prelacteals are not good for the child.

Complementary feeding knowledge scores improved by 44.78% and the practice scores by 25% in the EG. Maximum improvements were observed in the knowledge scores on the optimum age of initiating complementary feeds (72.41%). The practice which showed the maximum improvement involved more mothers preparing special complementary feeds for their child (108.51%).

Knowledge scores of the mothers for childhood diarrhoea also improved significantly by 81.26%. Maximum improvements were observed in the knowledge scores on causes of diarrhoea (300%) and its prevention (384.62%).

Practice scores also showed high significant improvement of 156.82%. Maximum improvements were observed in the scores of preventive measures followed (3150%) and use of ORS during illness (1137%).

Change in hygiene observation scores

Very slight (1.25%) non significant improvement was observed in the household EH observation scores. However the PH observation scores of the child and mother improved significantly by 8.51% and 5.38% respectively post intervention.

Conclusion

The Nutrition health and Food Safety Education Module used as an intervention tool proved to bring about significant desirable changes in terms of improving the nutritional status of the children and the knowledge and practices of the mothers with respect to hygiene, child feeding and childhood diarrhoea prevention and management. Hence it is required that nutrition health interventions are not nutrition specific and nutrition sensitive, which addresses other factors like childhood morbidities, hygiene etc that directly or indirectly affect the child's health.