

**DEVELOPMENT AND TESTING OF AN INTERVENTION
STRATEGY FOR IMPROVING PARTICIPATION OF
PARENTS IN PROMOTION OF GROWTH AND
DEVELOPMENT OF PRE-SCHOOL CHILDREN IN
BOLIVIA**

*Edgar Sejas¹, Tom Hoeree², Daniel Illanes¹,
Caroline Mejean³, Bernard Maire³, Edgar Arduz¹,*

Introduction

Earlier studies indicated a limited participation of the parents of pre-school children in the growth monitoring and health promotion programme (GMP) of the Ministry of Health of Cochabamba province - Bolivia. A lack of communication skills and tools for the health personnel were believed to be - at least partially - responsible for this. The objective of this study was to design and test an intervention strategy for improving communication between both caregivers and caretakers.

The results of a first series of studies using focus groups and individual interviews (reported elsewhere) made clear that parents were demanding for more information and explanations on their children's health status from the health personnel. But that on the other hand, health personnel did not consider this part of the health promotion activities as a priority within their task description. Therefore, a manual - in the form of a booklet - was developed explaining in clear and simple messages how to take care of the basic health needs of pre-school children. This manual covered dietary advice, developmental milestones and growth patterns of children and the different points of attention of a comprehensive preventive paediatric consultation. During a two-day training workshop, the manual was introduced as a communication and education tool for all health personnel. The essentials of growth and development of children were refreshed and communication skills were exercised. The manual was then distributed to all mothers attending curative and preventive services.

¹ Department of Sociology, University Mayor of San Simon, Cochabamba, Bolivia.

² Nutrition and Child Health Unit, Institute of Tropical Medicine, Antwerp, Belgium.

³ Institut de Recherche pour le Développement, Montpellier, France.

Methods

The intervention, as described above, was tested in Cochabamba province - Bolivia - in an urban and rural health centre, with an estimated population of responsibility of respectively 36.000 and 15.000.

During the process of implementation two group discussions were held with the health personnel of each health centre. These focussed on problems encountered during implementation and their perceptions of the usefulness of the manual and its acceptance by mothers consulting.

After 2,5 months of implementation an external researcher conducted interviews with individual mothers exiting the consultation room. Questions related to their number of and satisfaction with the explanations given by the health staff on the health status of their child. Between April and July 2001, 65 interviews were conducted. 17 were conducted in the urban health centre and 16 in the rural centre where the manual was introduced. And respectively, 18 and 14 interviews were conducted at non-intervention sites. All interviews were tape recorded and transcribed and answers were encoded and analyzed using QSR Nudist software.

Results

The group discussions indicated that the manual and the training responded to a felt need of the health personnel. Their confidence had grown in addressing the subject of health promotion with the mothers. They also felt that mothers did respond much more eagerly to their explanations than they did in the past (see Table 1). Finally, the manual seemed to provide the mothers with an opportunity - which did not exist in the past - to consult specifically for their worries on the diet of their children.

Table 1: Most frequently mentioned benefits of the manual by health personnel

Health personnel declared, that
<ul style="list-style-type: none">- they had more confidence in addressing health promotion issues with mothers- mothers responded positively to their explanations and advice- some mothers even consulted specifically for advice- the manual responded to their and caretakers information needs- they provided more systematically health education

The analysis of the exit interviews with the mothers shows that advice is now more frequently given during consultations. Mothers also indicated to be very satisfied with the explanations given with the help of the manual. In table 2, frequency of advice given per consultation are presented.

Table 2: Percentage of mothers indicating having received advice on specified topics during preceding consultation

Advice received on:	Urban <i>without</i> manual	Urban with manual	Rural <i>without</i> manual	Rural with manual
Timing of complementary food	67 %	100 %	64 %	100 %
Preparation of complementary food	67 %	94 %	21 %	93 %
Frequency of meals per day	56%	94 %	21%	67 %
Language and motor development	46 %	53 %	10 %	52 %

Discussion & conclusions

Although, these results are very encouraging, they should be interpreted with caution. Increased provision of information could have been the sole result of the recent training and not of the manual per se. However, health workers did indicate that the manual was a support during their routine activities. Also for the parents the manual was felt to have an additional value. They in particular felt, that the manual gave them more self-confidence to discuss growth and development of their children with the health staff. So, the manual seemed to motivate the health workers to provide and the parents to use, improved promotional services. So, these results seem to indicate a marked improvement in the communication between caregivers and caretakers.

Further evaluation needs to be done in order to understand the long-term effects of this new intervention strategy on communicative behaviour of the health personnel, as well as, on whether the provided information was assimilated and has introduced changes in child rearing practices of the caretakers.

**IMPROVING NUTRITION SITUATION WITHOUT
SUPPLEMENTARY FEEDING: EXPERIENCE FROM SC-
UK PROJECTS IN BANGLADESH**

*Moazzem Hossain¹, Abdullah-Al-Harun¹, Anna
Taylor¹*

Introduction

Despite impressive gains, malnutrition till to date remains as one of the biggest Public Health Problems in many low-income countries including Bangladesh. Currently 51 percent children in Bangladesh are underweight (low weight for age), 49 percent stunted (short for age) and 12 percent wasted (low weight for height). 45 percent of the babies are born with low birth weight and only 13 percent children are exclusively breastfeed for complete 5 months. More than 45 percent of mothers have low BMI (<18.5). High rate of malnutrition not only negatively influences the physical growth, mental capacity, learning ability and productivity but is also one of the most important causes of deaths among children in Bangladesh. Many achievements are undermined by the current infant mortality rate of 57 per 1000 live births (1) and child mortality being 118 per 1000 1-4 years children (2).

The Bangladesh Integrated Project (BINP), initiated in 1996 in six thanas (lowest administrative unit) and covers over 12% of rural communities (60 thanas), is now one of the major large scale nutrition programmes among developing countries funded by the World Bank. The project is heading for another expansion as National Nutrition Project that will cover the whole country in 10 years time. BINP includes a broad range of activities but is more known for it's community based nutrition component which provides nutrition services- growth monitoring, nutrition counselling and food supplementation for those found to be nutritionally at risk. It is directed primarily at children under the age of two and pregnant and lactating women. These service are offered at the community level through community nutrition promoters (CNP) supervised by Community Nutrition Organizers (CNO). Growth monitoring and supplementary feeding takes place at the Community Nutrition Centres (CNC), a space offered by any

¹ Save the Children, UK

village volunteer to carry out the activities during a certain part of the day.

Though appreciated by many people in the Bangladesh, SC-UK could not agree to the overemphasis of caring practices and undermines the economic opportunities in the project design, SC-UK had initiated a small pilot with the following objectives:

- Enhance the capacity of the mothers to manage and handle malnutrition at the household level using available resources in the community;
- Explore the feasibility of participatory approaches to ensure community ownership in nutrition activities;
- Look for an alternative to the supplementary feeding programme by external sources and try something within the opportunities of the household members.

Materials and methods

The study was conducted at Kotchandpur - a rural area of Bangladesh covering a population of 16520 (6048 households) during July 1998 to June 2000.

Intervention

Since the project aimed at enhancing community capacity and exploring the feasibility of participatory approaches, one of the main strategies of working was to identify self-help initiatives (SHIs) and work through them in the community. 13 such SHIs identified (one in each village) were identified to start as an entry points to those communities. Later the activities stretched to women groups also. A total of 10 Community Nutrition Workers (CNW) were recruited locally from the same villages where they had to work and were provided hands on trained by experts on nutrition and participatory methods. CNWs applied participatory methods like Participatory Rapid Appraisal (PRA), Focus Group Discussions (FGD), Participatory Planning Process (PPP) etc. methods to build a confident relationship with the community, identify problems, find possible solutions, make an action plan to materialize the proposed solutions to reduce the gap between the desired situation and the reality. As an outcome of the PPP, one of the activities identified by the community was to demand/receive training from the project on nutrition and health issues. The other major decision was conducting growth-monitoring a session once in every month for each village or in the area of the SHI. Growth monitoring sessions started in any of the volunteer's or influential people's house

(courtyard), eventually it merged with the EPI (Expanded Programme on Immunizations) session organized by the Public Health Service Provider (called Health Assistant or HA). At the initial stages of the project implementation, the CNWs used to inform the mothers of under 3 years old children and pregnant women a day before the day of happening of the event, later the volunteers played this role. However, once vaccinated, the children were weighted and recorded on a health card. From the weight chart the mothers could get an idea about their children's improvement of their health status (reflected in the weight chart). Nutrition counselling and cooking demonstration were also part of the growth monitoring sessions where the weighing, charting, nutrition counselling and cooking demonstration were done by the volunteers whereas the immunization and medical consultations were done by the HAs. No supplementary foods were provided, but mothers were taught how to prepare nutritious infant feeds at home using available resources around them. Those who could not attend the sessions or who were found to have a severely malnourished child were visited at home by the CNW. A thorough problem solving exercise was done with the household in order to find a workable solution and opportunities within the available resources. The pregnant mothers were advised about the importance of ante and postnatal care. In the later of the project activities, the CNWs encouraged the mothers to organize groups, make savings and receive credits or skill training in addition to their meeting and discussion on nutrition related issues.

Pre (baseline) & Post-intervention (evaluation) surveys

Pre (baseline) & Post-intervention (evaluation) surveys were done in 1998 and 2001 respectively. A total of 547 households were taken as sample during baseline while it was 563 during evaluation. Same households were interviewed twice but the number increased during evaluation due to the creation of new households by splitting the old ones. The samples were selected using systematic random sampling method by taking every eighth household. The anthropometric measurements were done with all the under five children available in those households. The number of under five children that was 222 in the baseline survey, it was 234 in the post intervention survey.

Data were collected administering a four parts interviewing schedule. The first part was used to identify respondents' demographic & economic characteristics of the household, food practice and toilet facilities. The second part was applied only to the mothers with under-five children. Third part was used to collect

information on knowledge and practices about mothers' pregnancy status, delivery facilities, family planning and breastfeeding practices, immunization status, childhood diseases and nutritional status of the children. It also collected information on hand washing after defecation and mothers' knowledge about and practices during pregnancy period. The fourth and last part of the questionnaire addressed the questions regarding knowledge of the respondent about their benefit from the project, participation in growth monitoring and knowledge on some common nutrition issues.

The questionnaire was partly pre-coded and partly open-ended. After coding of the open-ended questions the data were entered in the computer using software based on 'Foxpro'. There were logical checks available in the software which did not accept any irrelevant data (like inconsistent, impossible or beyond range). Finally, the analysis was done using SPSS for Windows (version 9.0). For anthropometric analysis, EPI-Info (EPINUT) was also used.

Focus Group Discussions

Focus Group Discussions were conducted during and after the survey to get a better explanation of the quantitative data and also to understand the procedure of initiation, continuation and completion of the activities, process outcome and means of sustainability of the project activities both programmatically and financially.

Results

About 41 percent respondents were found illiterate during baseline survey, which reduced to 39 percent during post intervention survey. The proportion for non-formal education was 20 percent and 18 percent respectively. Approximately half of the respondents were found engaged in agriculture related works during both the surveys with a slight increase in the sharecroppers (26% to 28%). 21 percent of the respondents had owned some amount of agricultural land. About 26 percent respondents were the members of some co-operatives, savings groups or income generating activities during baseline survey that increased to 36 percent during evaluation.

Table 1: Distribution of respondents according to their socio-economic status

<i>Variables</i>	<i>Baseline</i>	<i>Post Intervention</i>	<i>p value</i>
NGO, IGA membership	26.1	36.1	0.000
Homestead land holding			
No land	6.0	4.8	0.362
Up to 10 decimals	70.9	58.6	0.000
11-20 decimals	14.4	22.9	0.000
21+ decimals	8.6	13.6	0.007
Cultivable land holding			
No land	24.1	22.2	0.446
Up to 50 decimals	17.7	16.0	0.436
51-100 decimals	17.6	20.1	0.282
101-200 decimals	15.5	19.0	0.126
200+ decimals	25.0	22.7	0.366
Material of roof			
Concrete	5.9	8.0	0.158
Tin/CI sheet	46.9	68.1	0.000
Tally	28.9	26.6	0.376
Straw/leaf/Bamboo	32.4	22.3	0.000
Food cost			
Tk. 350-1000	22.9	11.2	0.000
Tk. 1001-2000	53.9	64.3	0.000
Tk. 2001-5000	23.0	24.2	0.659
Tk. 5001-10000	0.2	0.4	0.580
Education cost			
No cost	38.6	35.3	0.265
Tk 5-100	37.5	32.3	0.071
Tk. 101-500	17.4	24.5	0.003
Tk. 501-1000	3.5	3.6	0.943
Tk. 1000+	2.0	4.3	0.031
Households with TV	4.8	11.0	0.000
Ownership of			
Milking cows	19.2	24.9	0.022
Duck/hens	74.9	81.7	0.000

Ownership of land is one of the major determinants of socio-economic status of households in rural Bangladesh. Only 6 percent respondents were found to have no homestead land during baseline survey that reduced to 4.8 percent during evaluation period. Proportion of households possessing at least 10 decimals of homestead land decreased from 71 percent during baseline to 59 percent after 2 years ($p=0.000$). Those having land between 11-20 decimals or more than 20 decimals increased significantly from baseline to evaluation (14% to 23%, $p=0.000$ & 9% to 14%, $p=0.007$ respectively) survey period indicating a better socio-economic status of community. There was also a positive trend in case of ownership of cultivable land but not so distinct like the homestead land and those are not statistically significant.

There was an improvement found in using housing construction material also. Proportion of houses with straw/leaf/bamboo thatches have decreased (32.4% to 22.3%, $p = 0.000$) while the proportion increased in case of tin-shed (46.9% to 68.1%, $p = 0.000$) and concrete (5.9% to 8.0%, $p = \text{NS}$). Proportion of household with walls made of mud, brick and tin were 69, 24 and 1 percent respectively. The corresponding figures during evaluation were 67, 25 and 2 percent respectively. There have also been increases in proportion of households with television (5% to 11%, $p=0.000$), and cupboard (14% to 19%, $p=0.01$).

Information on household agricultural products was divided into two categories: one was rice or wheat and the other comprised of all other products. About 30 percent produced their subsistence for the whole year whereas 22 percent had it for six months. The proportions are similar both during baseline and evaluation surveys.

Questions were asked on the availability of domestic animals and their numbers. Ownership of milking cows and milking goats increased (19.2% to 24.9% and 10.6% to 14.4%) whereas ownership of cow/buffalo and goat/sheep decreased (55.4% to 49.9% and 47.3% to 43.7%). Ownership of duck and hens increased by more than 6 percent (74.9% to 81.7%) whereas, the ownership of pigeons has decreased a little (18.5% to 18.3%).

The mean and median expenditure on food was Taka 1710.52 and 1500.00 during baseline survey that was Taka 1793.90 and 1600.00 respectively during evaluation survey ($p=0.000$). Mean education cost per family per month increased from Taka 252 to Taka 308 ($p=0.000$) and the finding is very similar in case of conveyance also. Monthly expenditures on other items have also increased during evaluation than during baseline survey period.

Information on expenditures of some special items like treatment, clothing and social functions was calculated yearly. Proportion of households who spent Taka 1000-5000 for treatment and clothing purposes during baseline survey has now remarkably increased from 38 percent to 46 percent and from 72 percent to 83 percent respectively. Mean treatment cost per family per year increased from Taka 2843 to Taka 3664 ($p=0.005$).

The situation of exclusive breastfeeding practice rate deteriorated over time. The rate against zero months increased to 94 percent during evaluation that was 93 percent during baseline survey. Exclusive breastfeeding rate for both 2 and more than 2 months old children were 1.7 percent and 2.1 percent during post-intervention that was 1.4 and 1.8 percent respectively at the time of baseline survey ($p=0.556$).

The situation in terms of breast-feeding seems to have improved during evaluation. Only about 6 percent mothers were exclusively breast-feeding their babies that increased to about 16 percent during evaluation. Similarly the proportion of the households who were giving honey to the new-born as their first food also decreased from 69 to 51 percent ($p=0.001$). More than one fifth of the respondents stated that they left out some of the colostrum before giving it to the new-born. The situation has improved during evaluation (22% to 14%, $p = .042$). Prevalence of diarrhoea decreased by 5 percent ($p=0.097$) and ARI decreased by 10 percent ($p=0.000$) respectively.

The situation also improved in terms of mother's age of first childbirth. About 8 percent mothers during baseline survey had given the birth of their first child before 15 years of age but the proportion decreased to 3 percent during evaluation survey period ($p=0.047$). Other caring practices related to pregnancy also improved. At the time of base-line survey, only about 29 percent mothers could reduce their work load during pregnancy that during evaluation increased to 47 percent ($p=0.015$). Proportion of pregnant women who had been able to extra food during pregnancy was 21 percent during baseline that increased to 30 percent during evaluation ($p=0.000$). Major changes were also found in sanitation and hygiene practices. Proportion of respondents who had no fixed place for defecation had decreased from 51 percent to 31 percent while the percentage of hanging latrine remained the same (1.5 and 1.2 percent). On the other hand, fixed well or ditch for defecation rate increased from 35 percent from 54 percent ($p=0.000$) and sanitary latrine increased from 12 percent to 14 percent.

Daily dietary intakes of potatoes have increased from 56 percent households in base line survey to 88 percent ($p=0.000$) during evaluation. The proportion of milk intake has increased by 3 percent (22 vs. 25%, $p=0.005$), eggs by 3 percent (4 vs. 7 %, $p=0.006$) and ruti by 9 percent (4 vs. 13%, $p=0.000$) from base line to evaluation survey period.

Rates of malnutrition (less than -2 z score) have declined by 11 percent (43 vs. 32%, $p=0.015$) for stunting (height for age) and by 7 percent (45 vs. 52%, $p= .01$) for underweight (weight for age) in between the baseline and evaluation survey periods. Rate of wasting (weight for height) remained static around 14 percent during both the periods of surveys.

Table 2: Distribution of the respondents according to health and nutrition status

<i>Variables</i>	<i>Baseline</i>	<i>Post Intervention</i>	<i>p value</i>
Prevalence of diarrhoea	17.2	11.8	0.097
Prevalence of ARI	19.5	9.3	0.000
More than usual rest taken during pregnancy	37.6	43.6	0.185
Could abstain from heavy work during pregnancy	29.0	47.3	0.015
First food to the new-born			
Honey	68.9	50.8	0.000
Water	3.6	2.1	0.331
Breastmilk	6.3	15.5	0.001
Others	21.2	31.5	0.012
Increased food intake during pregnancy	20.9	30.0	0.000
Fixed well for defecation	37.4	54.1	0.000
Food consumption			
Bread	3.7	12.6	0.000
Potatoes	55.5	88.2	0.000
Egg	3.7	7.4	0.006
Milk	21.8	25.2	0.005
Stunting	43.0	32.0	0.015
Underweight	52.0	45.0	0.100
MUAC	5.4	4.5	0.696

In terms of the feasibility of the participatory approaches, the tools to ensure community participation have been very useful since there was great enthusiasm created among the community members initially. Gradually, the interest of the SHIs was declined as they were found to be more interested in the income generating activities and considered as an entry point to work with NGO's and have access to external funds. Finding their assumption not true, the attendance of the volunteers (specially the leaders of the SHIs) started thinning but there were other people who came to continue the work since they found it interesting, beneficial and prestigious. Male participation was declining while female participation was increasing. With some facilitation by the female workers, a group of mothers got organized to come together and started saving a very nominal amount of money (about 6 cents a week). Later on, they were linked to the local office of the Women Affairs department under the Ministry of Social Welfare. Through the government's regular programme, they got some skill training like sewing, handicraft, cow fattening, vaccinating chicken etc. These created an incentive to attend growth monitoring. Having found a new world, these mothers became very proactive not only in organizing the growth monitoring sessions, mobilizing the families to bring children for growth monitoring and convincing mothers to ensure

healthy practices at home. Even they were checking their neighbours for better practices.

The local self-help initiatives (most of them are dominated by males) were found to be more interested in income generating activities rather than voluntary work and gradually dropped out one by one. On the other hand, mother's participation was increasing gradually and eventually they took over though they were not even invited in the early days of this project. Ultimately, all of the 13 self-help initiatives (male only) have dropped but 9 new mother groups have evolved who not only invest in income generating activities but also organize and manage about 30 nutrition centres. As a result, even 1 year after closure of SC-UK's financial support, local partner CHESTA could continue their activities in the same project area with 3 staff members instead of 13 originally recruited. Their current salary is earned from a nursery garden, which was established during intervention period.

Discussion

It is clear from the study that there has been significant improvement in the overall malnutrition situation in the area although there had not been as such direct nutrition intervention like 'supplementary food packets' supplied from outside. That is what is generally understood by any large-scale nutrition intervention including Bangladesh Integrated Nutrition Project. However, though this project had wanted to challenge that idea that nutrition situation is not only dependent primarily on feeding practices but also more on ensuring food security, it did not undermine the importance of caring practices and falling sick. The project activities included problem solving analysis at household level to improve caring practices at home and growth monitoring sessions linked to public health services at community level. Though there was some effort to improve the socio-economic condition, it was affected by other external factors than project input. Though in-depth analysis had not been done to see the correlation between the economic variables and nutrition status confounding the caring practices variables, but with the available figures in this report, it was clearly evident that there has been significant improvement in the economic opportunities of the population in general. It becomes more obvious when we look into the current status of homestead land ownership, construction material of houses, expenditure for food, education and treatment etc.

It is true that the extent and level of improvement in nutrition and socio-economic status have been a bit unusual. Opportunities to spend money on food items and other household expenditure also increased substantially which all are difficult to believe an outcome of the project input. Rather, it was found under investigation that there was a racketeer group who were encouraging people to invest around Tk. 120% per year. Almost all but few people had invested money into this syndicate even selling their other properties and withdrawing money from the scheduled Banks. People's income and expenditure was rising in rocket speed. The positive effect is evident on overall increase in asset and life-style such as having more TV, spending more on food, education etc. and the income were fattening they were growing bigger everyday. The negative of such sudden boost economy is that it may collapse at any time and that happened with few months of closure of SC-UK's direct input into the project. So, it would be interesting to see how the current achievement is sustained after the collapse and how much the behavioural change can sustain despite economic crisis.

Nevertheless, the authors would like to conclude saying that

- Appropriate tools are essential to ensure community participation in growth monitoring sessions, however;
- Active community participation takes a long time to achieve it's desired outcome but ensures sustained involvement of the community;
- More than the direct nutrition input, other economic opportunities seemed to have played a major role in sharp improvement of nutrition situation in such a short time;
- Decision making process and opportunities to apply the knowledge was crucial in improving the nutrition situation.

References

1. Bangladesh Bureau of Statistics. Statistical Pocket Book of Bangladesh 1999.
2. Bangladesh Bureau of Statistics. Statistical Yearbook of Bangladesh 1998.