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**Nutrition Education and ORT:
The Gambian Experience**

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PROJECT BACKGROUND

In 1978, the U.S. Agency for International Development through the Academy for Educational Development initiated a project to apply what is known about communications and social marketing to promote oral rehydration therapy and related child survival practices. The project began work in Honduras and the Gambia as the Mass Media and Health Practices Project, focused primarily on ORT and the control of diarrhea. Today, the project has an expanded focus and includes a variety of child survival technologies, particularly immunization, infant nutrition, and preventive measures. The project is now known as Communication for Child Survival--HEALTHCOM. In addition to its work in Honduras and The Gambia, the project is working in Swaziland, Ecuador, Peru, Indonesia, and Malawi.

In The Gambia, during the period 1981-1984, the project focused on those most at risk, children under the age of five. Using radio broadcasts combined with health worker training and simple print materials, rural women were taught what oral rehydration therapy is, how they could use it at home, and how to monitor their children's progress during episodes of diarrhea. Special emphasis was also given to feeding advice in an effort to break the vicious cycle of diarrhea and malnutrition.

FIRST-YEAR MESSAGES

Following its developmental investigation of diarrhea-related beliefs and practices among rural Gambian mothers, the Project identified a core set of messages to address to this primary audience during the first year (1982) of the project's educational campaign.

Organized around the concept of a "special diet for diarrhea," the campaign promoted a threefold response to a bout of diarrhea: (1) preventive oral rehydration using a home-mixed sugar-salt solution; (2) continuation of breast-feeding; and (3) feeding of solid foods both during and after the bout and extra food once the bout has subsided. This latter feeding message was designed to address the nutritional problem of wasting that occurs among Gambian children--the most worrisome aspect of the chronic diarrhea they suffer during the rainy season--and to counter the practice common among Gambian women of reverting from solid foods to watery gruels of little nutritional value in feeding their sick children.

Such nutrition advice is widely recognized as an integral part of the treatment of diarrhea. WHO's Programme for the Control of Diarrhoeal Diseases, for example, states the following:

"In the management of acute diarrhoea, it is essential to repair whatever nutritional deficit arises and to maintain nutrition during the diarrhoea illness. This deficit results from reduced food intake due to anorexia and withholding of food, and from nutrient loss due to vomiting and malabsorption. There is no physiological basis for 'resting' the bowel during or following acute diarrhoea. In fact, fasting has been shown to reduce further the ability of the small intestine to absorb a variety of nutrients. Even during acute diarrhoea, 60% of the normal absorption of nutrients occurs. This is particularly true for fats and oils, which can provide a large amount of energy for the quantity eaten. Greater weight gain has been documented in infants given a liberal dietary intake during diarrhoea when compared with others on a more restricted intake." (A Manual for the Treatment of Acute Diarrhoea, WHO/CDD/SER/80.2,P.11).

EARLY RESULTS

In 1983, the Mass Media Project's implementation team conducted a formative evaluation for the purpose of assessing the progress of its campaign to date and to guide the development of second-year messages. At about the same time, Stanford University, conducting a separate but concurrent impact evaluation of the project, produced its initial set of data on the learning and adoption among Gambian mothers of the campaign's key messages.

Both evaluations indicated the same pattern of response to the "diet for diarrhea" messages: while as many as half of the Gambia's rural women appeared to have learned the campaign's formula for mixing sugar-salt solution and begun using it, fewer than a third had adopted the "give solid foods" message.

Several explanations for this discrepancy were considered, including the obvious possibility that the ORT messages had been better adopted because they had received much greater exposure during the first year. Indeed, the peak of the campaign's first-year activity was a highly publicized national educational lottery over Radio Gambia in which 150,000 handbills illustrating the sugar-salt solution formula were distributed and prizes were awarded on the basis of knowledge of the formula and how to administer it.

Another plausible interpretation was that the solid foods message was too crudely formulated. "Give solid foods during diarrhea" was very possibly contraindicated in the minds of many mothers by the anorexia children often suffer during diarrhea: a sick child may be reluctant to take any kind of food, let alone solid foods. The message also obviously did not apply to an unweaned child.

Project staff thus decided to reformulate the campaign feeding messages and to make feeding the primary focus of the 1983 rainy season phase of the campaign, just as oral rehydration had been the first year.

REVISED FEEDING MESSAGES

The list of revised feeding messages was as follows:

- o Continue breast feeding.
- o Give sugar-salt solution to prevent dehydration and to restore appetite. Remember the 3/8/1 formula. (3 Julpearl bottles of water, 8 Julpearl caps of sugar, and 1 cap of salt.)
- o Try to give the child small, frequent feeds even if he has little appetite.
- o Add some sugar or milk to the child's pap at the time of feeding to increase its palatability.
- o Once the child's appetite has returned, give solid foods like nyankatango (mbahal), nyelengo (nyeleng), futo (chere), and mani fajiringo (malo bunye bahal) to restore weight and power.
- o Oil, sugar, milk, and pounded groundnuts add extra power to foods. Add some of these to the child's food to increase its power.

- o Give an extra meal to the child for at least two days after the diarrhea has ended, and keep giving extra food until his weight and power are fully restored.

CHANGES IN EMPHASIS

These revised messages reflected the following changes in emphasis from the project's first-year messages:

- 1) **We differentiated between feeding a child during diarrhea and feeding after diarrhea, and promoted solid foods during the latter phase.**

Rather than telling mothers to give solid foods to their child at a time when he or she may have little or no appetite, we acknowledged the difficulty a mother may have in feeding her sick child and gave several practical suggestions for encouraging the child to eat something. These included giving small, frequent feeds and adding sugar or milk to the pap to improve its flavor and increase its energy value. Mothers were also encouraged to continue breast-feeding their sick child, which a very high majority of Gambian mothers already did.

Solid foods were then encouraged as an important and appropriate "catch-up diet" once the child is getting better and recovering his appetite.

- 2) **Solid foods were promoted as a source of power (strength) and weight gain for a child.**

A slogan was developed in the Mandinka and Wolof languages for use in both radio programs and graphic materials which said, "When your baby is recovering from diarrhea, give him solid foods to restore his power!" We continued to contrast powerful solid foods with weak watery paps. This message built on our finding that loss of weight and strength are among those symptoms of diarrhoea most commonly identified and cited by Gambian mothers as a concern.

- 3) **Full restoration of weight and power became the guideline we emphasized for how long to give extra food to a child recovering from diarrhea.**

We made this decision after failing to agree on a specific number of extra days or meals to recommend that would be neither too few as to be ineffectual or too many as to seem unrealistic in the Gambian context. WHO, for example, recommends an extra meal every day for at least a week but we felt this recommendation would be rejected as unrealistic by Gambian rural women who spend most of the day during the rainy season working in the fields away from their children, many of whom suffer diarrhea almost continuously at this time of year. We also felt confident that most Gambian mothers are very sensitive to their child's weight gain and loss, perhaps because a high percentage of them regularly attend MCH clinic where their children's weights are charted on a Road-to-Health Card.

Our final decision was to advise mothers to give an extra meal to the child for at least 2 days after a bout of diarrhea and, more importantly, to continue giving extra solid foods until his weight and strength are fully restored.

- 4) **We recommended a number of specific local dishes which are particularly energy-rich.**
- o mani-fajiringo/malo bunye bahal: dehusked rice is boiled, sometimes after preliminary steaming, and then the water content is reduced by a final steaming. Fajiringo is usually served with the groundnut sauce ourango.
 - o futo/chere: finely powdered flour is steamed twice, almost to dryness. Futo is eaten with added water or a thin sauce, dajiwo, often the water in which fish has been cooked.
 - o nyankatango/mbahal: fajiringo that has been cooked once is steamed with groundnuts, and often fish are cooked on top of it.
 - o nyelengo/nyeleng: dehusked, whole cereal is steamed. This food is usually served with a sauce made from groundnuts and leaves.

These dishes were recommended on the basis of their high energy content. All of them have a gross energy content in the range of 125-200 kcal/100g., expressed on a fresh weight basis, depending on which sauces or other ingredients are added to the dish. This compares very favorably to the rice or millet paps which mothers commonly feed their infants which are about 88% water and have energy contents in the range of 35-60 kcal/100g.

- 5) **In addition to these recommendations of specific dishes, we also promoted a number of food ingredients that will enrich the energy value of a child's food.**

These ingredients include sugar, milk, oil, and groundnuts. In addition to being desirable ingredients in a catch-up diet for a child who has been sick, promotion of these foods also represents an attempt to redress the imbalance in the nutrition education most Gambian mothers have received in the past which has concentrated almost entirely on relatively expensive protein foods such as meat and eggs.

FINAL RESULTS

The following data on the behavioral effects of the Gambian campaign are excerpted from the Stanford University/Applied Communication Technology report, "The Mass Media and Health Practices Evaluation in the Gambia: A Report of the Major Findings," August 1985.

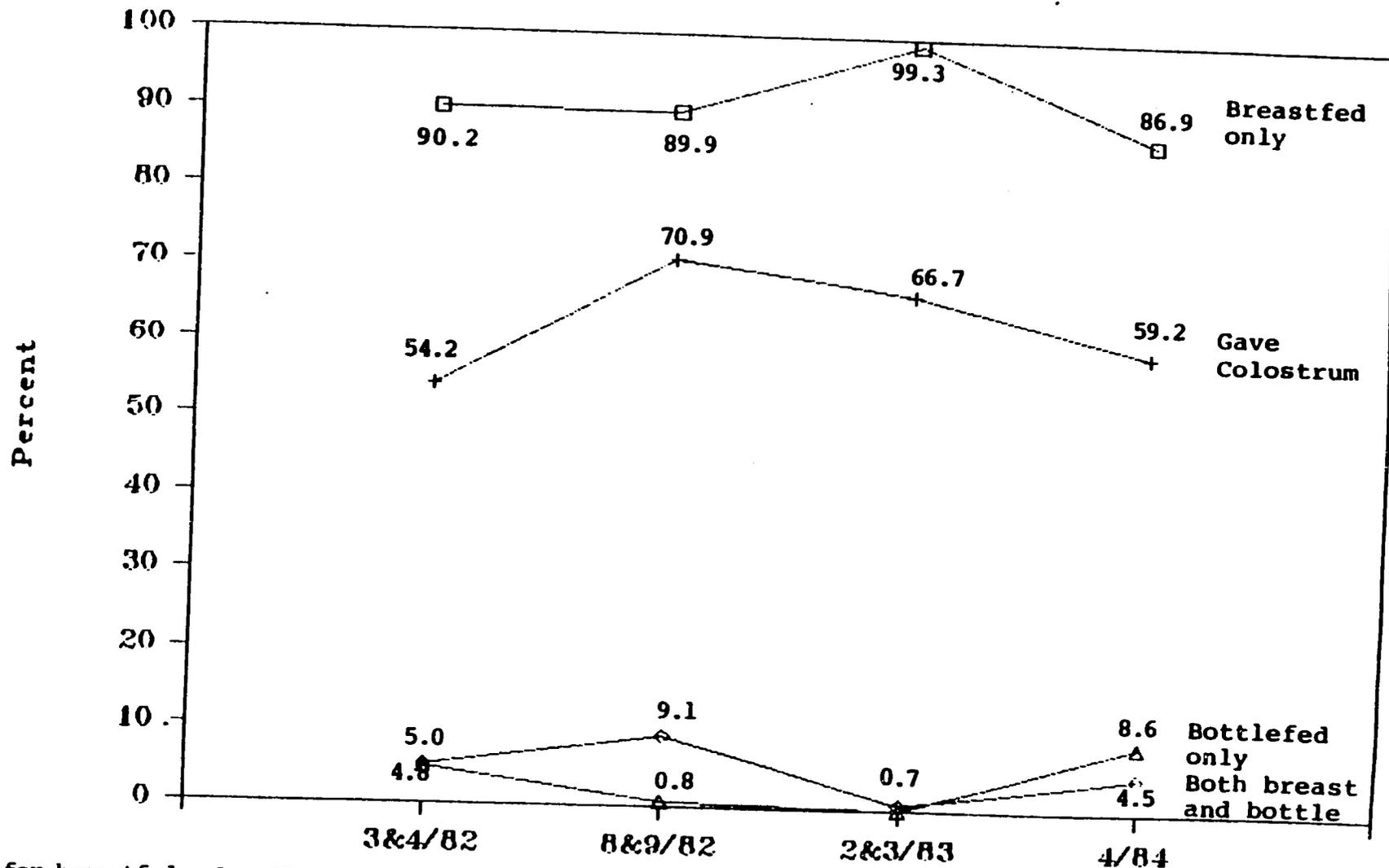
Breastfeeding

Most mothers in the evaluation sample breastfed their infants. Figure III-1 shows that the percentage of mothers reporting that they breastfed their youngest child during the first months of its life gained about eight percent during the campaign — up to a high of 99.3 percent in February 1983 and dropped back to 86.9 percent in 1984. The percentage of mothers bottle feeding their infants remained under 10 percent all during the campaign. Additionally, by April 1984, a majority of mothers (59.2%) claimed that they were giving their infants colostrum or first milk, rather than discarding it.

Figure III-5 demonstrates that breast-feeding continued when infants were ill. The percentage of children whose mothers said they stopped breastfeeding during diarrhea dropped from 8.8 percent before the campaign to between zero and two percent during the 1983 rainy season. However, more children stopped breastfeeding during diarrhea in 1984.

It is unclear why this upswing in stopping breastfeeding occurred over the course of 1984. It may be associated with reduced health status and increased dry season workload during the 1984 drought, or may be related to the shift in the campaign to sanitation issues during the last phase of the campaign.

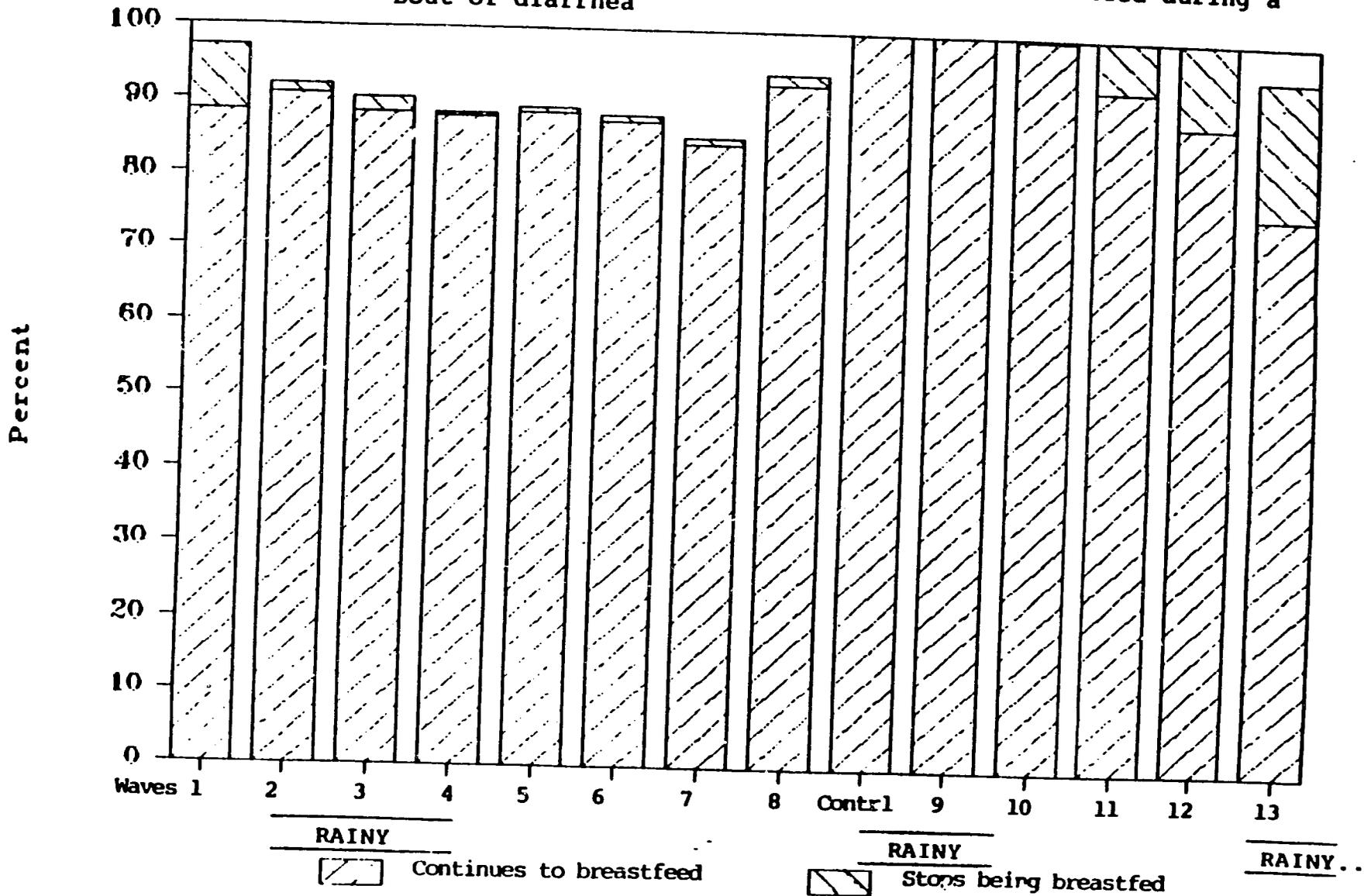
Figure III-1 Breast and bottle-feeding of youngest child in the first months of life, March 1982 to April 1984



n's for breastfed only: 655, 605, 746, 658, respectively; for gave colostrum: 379, 436, 497, 420, respectively; for breast and bottle : 35, 7, 0, 34

Note: HOWFEDGI, DISCGI

Figure III-5 Percentage of children breastfed and not breastfed during a bout of diarrhea



Feeding during diarrhea

Figure III-7 shows the distribution of children for whom feeding was discontinued during diarrhea, for children given the same diet or more liquids, and for children fed solid food. During the 1982 rainy season promotion, the women seemed to be responding to messages about continuing feeding and giving more liquids. The number of children not fed during diarrheal bouts dropped from 32 percent to between 10 and 17 percent, while the number of children given the same diet or more liquids rose from an initial 59 percent to 82 to 85 percent.

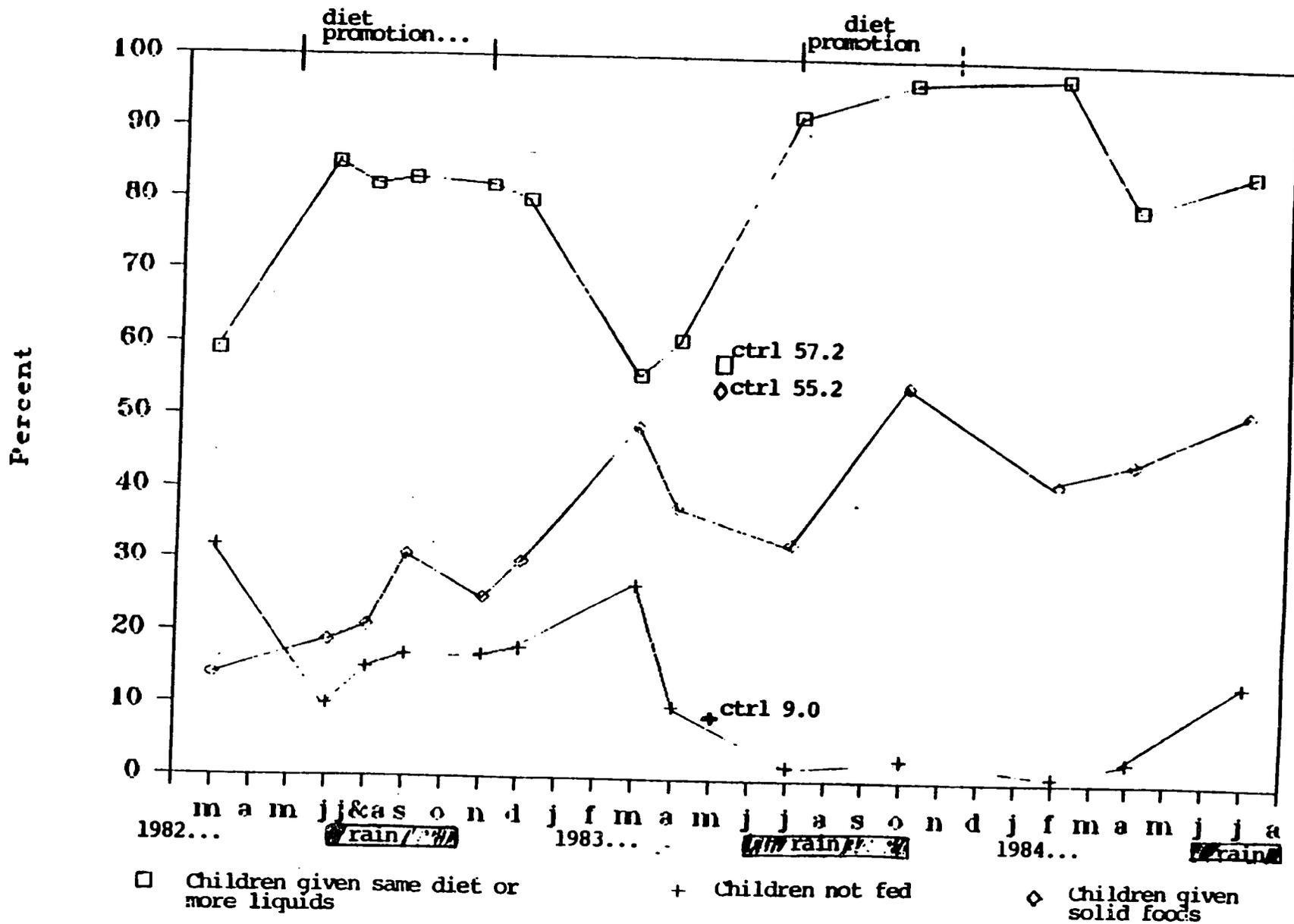
When the campaign ceased its diet emphasis from October to July 1983, women seemed to resume their past behaviors; 56 percent of the children were fed the same diet or more liquids in March 1983 and 27 percent of the children were not fed. Then with the resumption of diet messages, nearly all women (92-98%) responded by saying they continued to feed their children. These levels dropped somewhat after the messages ended in the dry season, 1983-84, but the levels did not drop as much as they had after the first year. Thus, at the beginning of the rains in 1984, 85 percent of the children were given the same diet or more liquids, and 14 percent were not fed at all during diarrhea bouts.

Messages during the second rainy season particularly emphasized giving solid foods to recovering children, after comparatively few mothers seemed to learn this important dietary behavior during the first promotion phases. Figure III-7 shows a rise from 13.6 percent to 30.9 percent over the first rainy season, a substantial rise to 49.5 percent when there was no emphasis on feeding in March 1983, followed by a drop and then second rise by the end of the promotion in 1983.

Other evidence also points toward a forgetting effect once feeding messages ceased. Figure III-10 shows that between the 1983 rainy season (when the feeding campaign was conducted) and the 1984 dry season, the percentage of women who fed their children less than normal after diarrhea increased from 16.4 percent to 22.8 percent. In addition, 13.7 percent fewer women increased the amount of foods given recovering children. The percentage of women giving the same diet or more foods dropped slightly between September and February, from 83.6 percent to 77.3 percent.

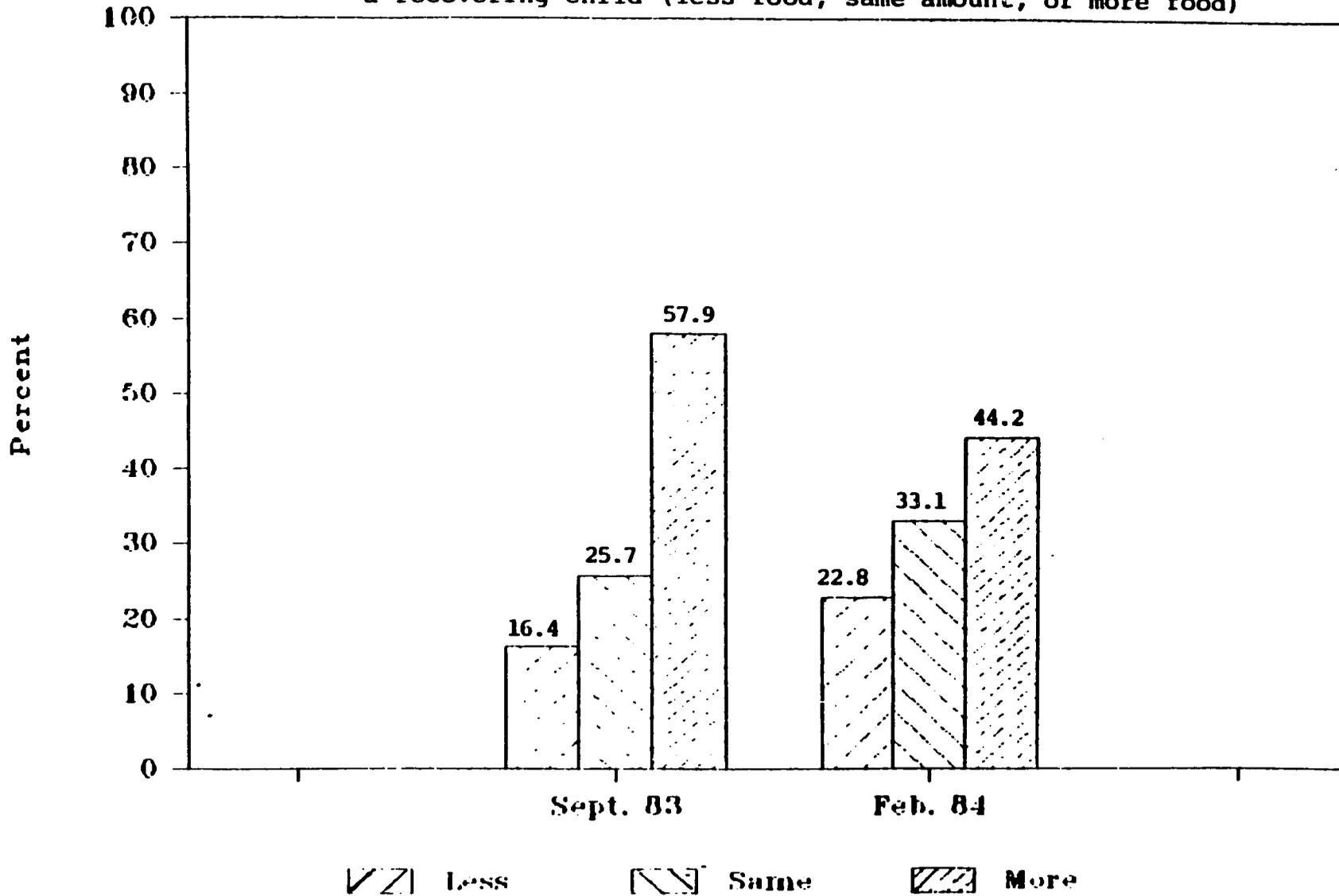
During the 1983 rainy season, 72.8 percent of the women gave either solids alone or solids and pap together to their ill children. Only 13.2 percent reportedly gave paps alone to their children. By the following February, 50.8 percent of the women said they gave solids and 46.3 percent gave only paps. Some of the deterioration here may be due to food shortages during the drought, in addition to the decrease in frequency of feeding messages. Looking at the composition of solid foods given ill children, rice and groundnut porridge, two foods in short supply by February 1984, dropped in consumption while coos increased (Figure III-13). "Power foods" like fish and meat were rarely mentioned at either time by the women.

Figure III-7 Feeding during diarrhea, aside from breastfeeding



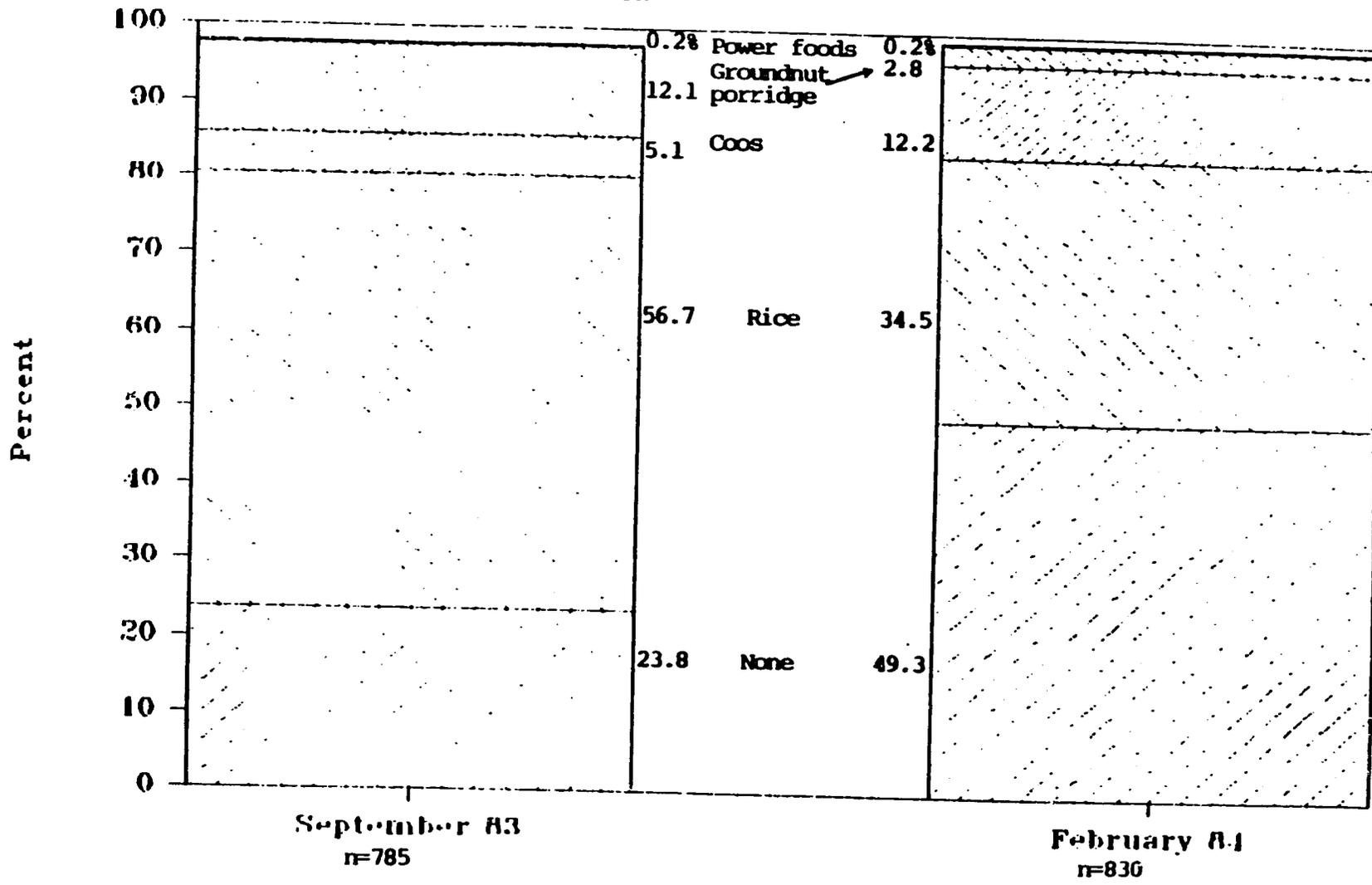
n's = W1= 971; W2= 885, W3= 960, W4= 956, W5= 912, W6= 1041; W7= 1027, W8=1021
 W9=951, Ctrl=250, W10=936, W11=1060, W12=969, W13=972
 CHNGEQ, TYPFDQ, DIFEDQ; MORB

Figure III-10 Mothers' reports on the amount of foods she gives to a recovering child (less food, same amount, or more food)



N's = Sept 83=689, Feb. 84=813
EXTRACTS 5,6

Figure III-13 Types of solids which mothers reported feeding to sick children



GRAD: IYFPGT, GVSOLGT, YSPAPGT

CONCLUSION

In summary, Gambian women seemed to respond to those feeding messages which the campaign emphasized the most, but showed signs of forgetting or ceasing behaviors when the messages stopped. After the second round of feeding messages, there was less forgetting. This may be due to more effective message construction or the fact that the second year was building on the first year's base.

Nearly all mothers continued to breastfeed their children during diarrhea once the campaign began. Aside from breastfeeding, mothers learned to keep feeding other foods to ill children who were old enough. After the campaign emphasized feeding during the second rainy season, few children were not fed anything at all, but only half received solid foods. Campaign messages perhaps should have been more specific about the proper age to give children solid foods. Of those children eating paps, half again had sugar, milk or some other supplement added to the pap.

The Gambian experience in incorporating nutrition education messages in an ORT educational program thus illustrates that substantial, measurable increases in positive feeding behavior may be derived from an intensive, multi-channel communication approach in the relatively short period of 1 - 2 years. As with other new health behaviors, however, newly learned feeding practices must be immediately and regularly reinforced in order to be maintained over time.