THE CHILD WEIGHT CARD

Its Effects on Pakistani Mothers For Better Child Care Practices

Field Probes into the Effects of Introducing Child Weight Card System in Selected Voluntary Agency Maternal Child Health Centers to Motivate Mothers For Increased Participation in Learning Better Child Care Management.

By

Nasir R. Jafri
Project Manager, Nutrition
US AID, Islamabad
August, 1979

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
MISSION TO PAKISTAN

ACKNOWLEDGEMENTS

A great debt is owed to those who have helped in the compilation of this report and in particular to all the mothers and Lady Health Visitors who have so generously given their wholehearted cooperation in conducting the present "mini-studies" and also devoted their time and hospitality. Special gratitude is due to the following individuals:

1. Mr. Naseer Chowdhry, Director, Family Welfare Council, Lahore

2. Miss Nota, Medical Superintendent HRH, The Agha Khan Health Board, Karachi

3. Begum G.A. Aleem, Incharge Health Project, All Pakistan Women's Association, Karachi

4. Mrs. Aftab Qamar, Project Manager, All Pakistan Women's Association, Karachi

Sincere thanks also go to Dr. Khurshid Pasha, Principal, Nurses Training Institute, Nishtar Medical College, Multan for the continuing support and assistance rendered to the survey staff.

Indebtedness is also acknowledged to those who have made helpful comments on the manuscript, including Dr. James W. Martin, Chief, Office of Health, Population and Nutrition, USAID Mission to Pakistan, Islamabad and Mr. Leslie A. Dean, Program Officer, USAID Mission to Pakistan, Islamabad.

TABLE OF CONTENTS

SUMMARY

A series of field probes were carried out by the Nutrition Branch of the USAID Mission, Islamabad to assess (a) the acceptability and comprehension by the mothers and Lady Health Visitors (LHVs) of voluntary agency operated Maternal Child Health (MCH) centers regarding the use of child weight cards as a mechanism to motivate mothers to get training in child health and nutrition, (b) assessment of traditional remedies used to cure diarrhea in children, (c) testing the understanding and concept of oral rehydration for diarrhea cases, (d) assessment of prevalent practices of introducing solid food supplementation to children, (e) identification of the type and kind of weighing scales presently used in MCH Centers and assessment of their durability, portability and cost, and (f) exploration of the possibility of alternate means of producing child weight scales locally in order to standardize the use of reliable scales in Pakistan.

In addition, information on the key indicators of age, income and occupation was also collected.

Ten MCH Centers operated by the voluntary agencies were selected for the studies. A total of 120 mothers (12 mothers in each center) and 120 children 6 to 36 months of age were registered to participate in the studies. During the course of the studies from January 1979 to July 1979, 12 mothers along with their children dropped out of the studies. Thus a net sample size of 108 mothers and their children regularly participated throughout the course of the studies.

The introduction of child weight cards was helpful in obtaining active participation of the mothers in the weighing processes and resulted in increased visits to the MCH Center each month compared to very irregular visits made before the introduction of the card system.

It was found that the use in the study of child weight cards depicting different degrees of malnutrition in multi-colors conveyed the message easily to the mothers as compared to mono-colored child weight cards heavily loaded with printed messages in Urdu and English which the mothers could not read or understand.

Increased participation of mothers was found to result in a discussion-decision process between the mothers and the LHVs. This further led to an increased number of mothers seeking LHV advice regarding the

management and treatment of diarrhea, oral rehydration, and introduction of solid foods at an early age of 3-6 months. Food beliefs, levels of incomes, literacy, and occupation was found to exercise lesser influence in behavioral changes once the mothers were motivated to participate in the Child Weighing Program, and provided a copy of their child weight card which they religiously brought each time they visited the center.

It was evident from the findings of the field studies that through appropriate non-formal educational methods illiterate mothers can be trained to adopt new practices or acquire new skills, if these are developed and introduced with due regard to local imagination and socio-cultural milieu.

/1

I. INTRODUCTION

A. Purpose

The present field probes were carried out to study the effect of introduction of a Child Weight Card System as a mechanism to motivate mothers to increase participation in the training process for better child health and nutrition care practices, which include specifically the management of diarrhea and early introduction of solid foods.

B. Background

In May 1977, USAID/Pakistan planned a Community Nutrition Education Project for implementation beginning in 1980 to introduce and strengthen nutritional services in various facilities operated by the major voluntary agencies in Pakistan. A series of "mini-studies" were undertaken to collect information through field probes of voluntary agency operated MCH Centers to develop the project design for the project.

C. The Problem

All nutritional studies and surveys show that the major nutrition problem in Pakistan is Protein-Calorie Malnutrition (PCM). PCM is the direct consequence of injurious child feeding practices, late introduction of solid foods and harmful weaning patterns. The National Micro-Nutrient Survey, 1977, 1/, using the measure of weight for height for age and the Harvard Standard, 2/, found that about 26% of children under five years of age are moderately to severely malnourished. Data from the National Nutrition Survey, 3/, the National Micro-Nutrient Survey, Dr. Fahmida Jalil's study, 4/, and Lehtrar, 5/, and Khodadad Colony, 6/, studies indicate that 88% of mothers breastfeed their children at least until 21 months age and about 60% of mothers continue to 24 months or more. Only 4% are weaned by the age of one year.

It is also reported that at least 20% of all mothers introduce no solid foods in the first year of life. Prime weaning foods are roti, fruits (especially bananas), and milk. Diluted cow, buffalo, dried skimmed milk or goat's milk is usually introduced during the first six months. Between 6 and 9 months, 40% of mothers try biscuits and 20% introduce roti, rice or fruit. About 20% of mothers introduce no weaning foods

until the baby is at least 10 months of age and then these food supplements are usually given in inadequate amounts. Although there is surprisingly little difference between rural and urban weaning practices, there is wide variation in individual locations.

Dr. Jalil observed that a significant number of mothers did not have breast milk in quantities adequate to satisfy the infants' demands beyond 4 to 5 months. Traditional beliefs, absence of proper guidance and lack of resources account for late introduction of solid foods to infants.

Imported dried skimmed or full cream milk is largely used by the middle and upper middle class urban population.

Commercial weaning food is locally manufactured by Glaxo Laboratories Pakistan Ltd., under a brand name of Farex and is expensive and animal milk is unavailable or too costly (Rs. 4.00 per kilo) to supplement the diet of breast-fed infants.

D. Maternal Child Health Services System

The most important delivery system of maternal and child health care in Pakistan is a network of MCH Centers operated by both the government and private voluntary agencies.

(i) Government MCH Centers:

There are a total of 715 government - operated MCH Centers in Pakistan, of which 399 or 56% are in urban areas and 316 or 44% in rural areas. The distribution of these centers by province is shown in Table 1. Maternal and child health services are also provided at rural health centers, hospitals, and maternity homes, bringing the total number to 879 state-run facilities offering this care.

Table 1

Provincial Distribution of MCH Centers

Punjab	Sind	NWFP	Baluchistan	Azad Kashmir	Northern Areas
440	151	81	35	8	0

Source: Planning Commission, GOP, Health and Related Statistics of Pakistan, March 1975

Each MCH Center is intended to serve a population of 10,000 although most of them serve significantly more than that. On a national average, there is one MCH Center for every 97,900 people. This average does not take into account variations in need or availability of similar service by other institutions.

a. Personnel:

Each center is supposed to be staffed by an LHV, a trained dai (midwife), and a chowkidar-sweeper. A list of the staff actually in position in the centers is not available, but there are reports that a number of the centers do not have an LHV in-charge, especially in rural and remote areas. Salaries of the staff are provided by the Government of Pakistan and by the Provincial Governments. The training of the LHVs consists of a a two year course at a school of public health nursing. Since 1974, nutrition education has been included in the course of study.

b. Services:

The responsibilities of the MCH Centers include the provision of prenatal and postnatal care of mothers, delivery of babies, preventive and curative medical treatment of mothers, infants and children, as well as health and nutrition education. LHV's are also supposed to train village women as dais, in order to increase the availability of midwifery services. Nutrition education is not presently included in the training of dais. In-service training for LHV's financed by UNICEF and the Government of Pakistan, now includes nutrition as a subject. In addition to her office hours, the LHV is supposed to make home visits in the villages served by the center, to stay informed about the population, to monitor the progress of women and children under care, and to perform out-reach and education. She is also responsible for maintaining extensive written records of services provided by the center.

There is no charge to clients of the center for its services, although it is customary to give some payment in the form of a present to the LHV or dai when a baby is delivered.

c. Physical Plant:

The equipment for the center and the medical supplies are provided by UNICEF. These medical supplies are sporadic and irregular. Each center is supposed to have facilities for storing medicines but these facilities vary among the centers. There is no provision for transportation of the MCH Center staff to and from the villages. The LHV makes her visits on foot, or must provide her own transport.

(ii) Private Voluntary Agencies MCH Centers:

In addition to the efforts by the Government, a large network of about 1,000 MCH Centers are operated by local private voluntary agencies as shown in Table 2 (see Appendix). The clients of the voluntary agency MCH Centers are generally mothers and children from low income families.

Voluntary agency MCH Centers are organized either through the initiative of local community leaders who approach a voluntary agency itself or through field contacts by voluntary agency representatives. A local committee or a local council is formed to coordinate the activities of the voluntary agency and help motivate the local population to participate in the program. This local committee arranges space for the center and participates in the meetings called by the voluntary agency and the joint operating decisions made in the meetings are carried out by the local committee on behalf of the community.

The voluntary agency usually provides the needed equipment, supplies and personnel to operate the center.

II. METHODOLOGY

The "mini-studies" field-probes were carried out to provide information in the following areas:

1. assess the acceptability and comprehension by the mothers and LHVs of child weight cards as a mechanism to motivate mothers to get training in child health and nutrition care;

2. assess the traditional remedies used to cure diarrhea in children;

3. test understanding and acceptance of the concept of oral rehydration for diarrhea cases;

4. assess the prevalent practices of introducing solid food supplements to children;

5. identify the type and kind of weighing scales presently used in the centers, and assess their durability, portability and cost;

6. explore the possibility of alternate means of producing child weighing scales locally in order to help standardize the use of reliable scales throughout Pakistan; and

7. collect information on key indicators such as age, income and occupation.

A. Field Team

A team of one male and one female investigator was constituted, which was responsible for pre-testing the questionnaires, locating the MCH Centers selected for the studies, interviewing mothers and the LHV's, and tabulation of the data.

B. Sample Design

Ten MCH Centers operated by the voluntary agencies were selected for the studies. The criteria of selection of locations took into account

major regional differences, ecological and agricultural variations, as well as access and time required to reach each center. A list of MCH Centers selected for the studies, locations and the voluntary agency operating the center is presented in Table 3 (see Appendix).

C. Questionnaire Pre-Testing

Questionnaires used in the studies were pre-tested by the Field Team in Rawat MCH Center, 10 miles from Rawalpindi. The questionnaires were remodeled in the light of findings made during the pre-testing regarding comprehension of questions by the mothers and the LHVs.

D. Child Weight Cards (Sample attached, see Appendix)

Each child's weight card was maintained in duplicate. One copy was retained in the center and the other was given to the mother, who brought it with her at each visit to the center.

Three types of child weight cards were used in the studies:

Type A - developed by Dr. Mushtaq A. Khan, Pediatrician, Islamabad Polyclinic. This card indicated the growth curve path in fine lined curves. The card was printed in blue color with graphic representations about family planning, breast feeding and introduction of solid food. On the back of the card, printed in English and Urdu were socio-economic characteristics of the child and the family, information about immunization, morbidity history and the treatment given.

Type B - developed by the Technical Assistance Bureau of Nutrition, AID/Washington. This card indicated the growth curve path in fine black lines over a deep yellow background. Instructions to plot the growth curve, socio-economic characteristics of the child and the family, morbidity history, and immunization information were printed in English.

Type C - designed by Mr. Nasir R. Jafri, Project Manager Nutrition, USAID Mission, Islamabad and published by the Pakistan Family Welfare Council, Lahore. The design of the C type card was developed with due consideration of the fact that colors convey specific meanings in different cultures. The colors should convey the same meaning as perceived by the recipient in her/his socio-cultural milieu; otherwise the message will be lost, forgotten or even resisted. In order to motivate and attract the attention of a largely illiterate and tradition bound audience, the use of colors to transmit messages is particularly useful.

The resultant card indicated the growth curve path in four colors.

1. The "Health Path" was represented in green color, signifying growth and fertility as perceived in Pakistani culture.

2. The "First Degree Malnutrition Path" was printed in yellow color, which is indicative of weakness and anemic condition.

3. The "Second Degree Malnutrition Path" was represented in blue color, which is a sign of illness (poisoned blood) and disease in Pakistani culture.

4. The "Third Degree Malnutrition Path" was represented with a deep red bold line at the bottom of the growth curve path signifying the lower limit (danger, blood and murder).

On the left top corner of the card space is provided for a picture of the child and at the bottom were two graphic pictures indicating supplemental feeding and breast feeding. In the middle graphic pictures depicting

child spacing were shown. At the bottom of the card were printed instructions to the LHV on use of the card and a message in Urdu on oral rehydration.

E. Groups of Mothers

Three groups of four mothers each were selected in each center (Total of 12 mothers). Each group was given type A, B or C child weight card, which were used over a period of six months to assess the comprehension of mothers, acceptability and as a mechanism to motivate mothers for regular visits to the MCH Center for training purposes.

F. Oral Rehydration

Oral rehydration salts supplied by UNICEF were distributed in all the 10 MCH Centers selected for the studies. The LHVs were instructed in the preparation of the salt solution so that they could teach this to the mothers. In addition the LHVs were briefed regarding the importance and method of use of these salts to save the diarrheaic child from dehydration.

G. Interviews

The personal interview technique was employed in the implementation of these studies. During the first round of visits interviews of both the mothers and LHVs were recorded. The LHV was trained in the use of oral rehydration salts and in using the child weight card. They were also briefed about the purpose of the studies and the procedure for collecting the required data.

During the second round of visits which started immediately after the first round was completed, follow-up information on a specially developed separate questionnaire was recorded. The object of the follow-up visits was to collect information on the changes that might have occured through the regular weighing of children, interest of mothers in the child weight cards and their acceptability as well as any other behavioural change in weaning food introduction and management of diarrhea. This information was compared with the data collected during the first round.

Assessment of the weighing scales regarding portability, durability and cost was done through interviews of the LHVs and also through personal observations by the interviewing teams.

Socio-economic information about the sample population was obtained directly from the mothers. The Field Team indicated that income statements were hard to obtain since most of the women did not know the income of their husbands. Moreover, in most of the cases the income was exaggerated to convey a higher social status.

Information regarding the time spent by the LHVs in clinics and visiting homes was obtained from the LHVs and from other staff working in the centers.

III. PRESENTATION OF RESULTS

A. Socio-Economic Characterists of the Sample

(i) Geographic Distribution:

Twelve mothers were registered in each of 10 MCH Centers to participate in the mini-studies for a total of 120 mothers and 120 children 6 to 36 months of age. Provincial distribution of the sample age and sex distribution are presented in Table 4 (see Appendix). During the course of the studies 12 mothers and children dropped out for various reasons (transfer of the husband, lack of interest, death in the family, family went to other village/city to attend a marriage of a close relative, etc.)

(ii) Families with Children Under 5 Years:

The number of families in the sample with children under five years of age as well as the total number of living children and size of the household are presented in Tables5 and 6 (see Appendix).

(iii) Education:

The educational level was based on the number of years spent in receiving formal education in a school which included the ability to read and write in Urdu (Table 7, see Appendix).

(iv) Occupation:

The occupation of both the husband and wife were recorded for the sample population. The highest number of families utilizing voluntary agency MCH Centers were either holding jobs in the Government (husbands 37%; wives 6%) or in the private sector (husbands 39%; wives 5%). Ninety-four (87%) of the mothers out of 108 did not have any jobs other than household work (Table 8, see Appendix).

(v) Income:

Incomes of the husband and wife were recorded separately. In spite of every effort to find out both cash and non-cash income of a family, it was difficult to obtain accurate statements regarding income.

The monthly average of the husband's income comes to Rs. 81.20 and that of an earning wife Rs. 215.70. For the average family of 8, this represents a per capita monthly income of Rs. 37.00 (Table 9, see Appendix). The number of earning wives was only 14 out of the sample total of 108. Thus Rs. 37 per capita monthly income was an exception and could be considered as too high for an average.

B. Child Weight Monitoring

The usual child weighing program in the sample MCH Centers consists of recording the birth weight in the center's registers. Subsequent weighings are done irregularly whenever the mother visits the center and entry is made on a fresh page of the daily register. Thus it is time consuming and difficult to track the child growth pattern from the registers. Plotting the child growth curve on a child weight card against a reference and supplying one copy to the mother and another kept in the center is not practiced in the sample centers.

(i) LHVs' Reaction:

LHVs of the sample MCH Centers reported that they carry out weighing in the centers whenever the child visits the center. They do not carry weighing scales with them during home visits. The monthly weighing varies from locality to locality, with a minimum of 12 to a maximum of 300 children. All of the LHVs reported that they do not maintain child weight cards in the centers nor give cards to mothers.

Of the three types of cards provided, the LHVs preferred using type 'C' cards as noted in Table 10.

Table 10

Primary LHVs Reasons for Type 'C' Card Acceptability

Reasons	No. of LHVs	Percent
Has Picture of a Baby	3	30
Attractive Colors	3	30
Easy to Understand	4	40
Total	10	100

The LHVs reported that they found that by giving a copy of the weight card to the mothers, the mothers became conscious about the health of their children and actively participated in the weighing process. Overall the rate of mothers participation was very high and continued to increase. The LHVs reported that they intend to continue the Child Weight Card System even after the study is discontinued.

(ii) Mothers' Reactions:

The design of the study required three groups of 40 mothers each receiving one type of card. However, at the time of actual registration several mothers insisted on having 'C' card only.

Thirty-seven mothers received 'A', 38 'B' and 45 mothers received 'C' type of cards. By the end of the study in July 1979 six mothers from each of the A and B groups dropped out but 45 mothers who received 'C' type card continued participating till the end of the studies.

(iii) Visits to the Center:

The mothers indicated a very high rate of participation in the weighing program, once they were supplied a copy of their child weight card and understood the significance of the health status curve on the card.

The rate of visits by mothers to the MCH Center increased after the card system was introduced as noted in Table 11 (see Appendix). All the mothers who received 'C' type card visited the center thrice a month although they were supposed to visit the center once a month.

(iv) Mothers' Comprehension:

Mothers' comprehension and understanding of the health curve plotted on the child weight card were recorded. Seventy-eight percent of the mothers reported that the purpose of the cards was to check the child's weight, whereas 5% of the mothers said that they could not clearly follow the explanation given to them by the LHV (Table 12, see Appendix).

C. Weighing Scales

Both spring and beam balances were used in the sample MCH centers, with a beam balance with a bucket used to weigh infants upto 12 months of age and a spring platform scale used for weighing children above 12 months and mothers. Some of the centers were found having a bathroom spring balance type of scales. In most cases the balances were supplied by the UNICEF. The bathroom type of scales were purchased by the voluntary agency operating the center and were in operating condition, sturdy and durable. The beam balance for infant weighing is portable (weight 1 kilogram) but is not taken with the LHV during home visits. The LHVs reported that the repair of the scales is easy and is carried out locally.

An inquiry from the local market indicated that no scales, beam or spring balances are manufactured locally. One of the manufacturers, M/s. Nazer Industries of Karachi, indicated their capability and willingness to manufacture beam balance portable scales if a large order upto 2,000 scales is placed with them at an approximate cost of Rs.200-300 each.

D. Diarrhea Treatment and Management

(i) Diarrhea Prevalence:

All nutritional studies and surveys show that about 80% of children five years of age and under regularly suffer from diarrhea. Dr. Fahmida Jalil's study found that acute dehydration caused by diarrhea kills 30% of the malnourished babies infected as compared to only 2% of the well nourished babies.

At the time of registration of children in January 1979 and before the child Weight Card System was introduced it was found that 88% of the children in the sample had been suffering from recurrent diarrhea bouts. After the Child Weight Card System was introduced and practised for 5 to 6 months, the follow-up information collected in July 1979 revealed that the rate of diarrhea prevalence among the sample children came down to 61% (Table 13, see Appendix).

(ii) Consultation Patterns:

The general pattern for consultation, when a child starts having diarrhea, was to bring the child to the MCH Center for treatment. Forty-one percent of the mothers in the sample population consult with and act on the advice of the LHV. Sixteen percent of the mothers went to the nearest Government hospital or to a private doctor. Only 6% of the mothers either went to a local homeopath, or asked for the advice of a relative. Thirty-seven percent of mothers treated the diarrhea themselves using family home remedies (Table 14, see Appendix).

A marked change occured in the consultation pattern among the sample population by the end of the study and after the introduction of Child Weight Card System. A large percentage (83%) of the mothers reported consulting and acting on the advice of the LHV regarding treatment and management of diarrhea. Table 15 presents the changed consultation pattern (see Appendix).

(iii) Effectiveness of Treatment:

Seventy-seven percent of mothers reported that the medicines supplied by the LHV for the treatment and the advice given for the management of diarrhea by use of oral rehydration salts and foods were highly effective. Mothers responses are presented in Table 16 (see Appendix). The various types of diarrhea treatment are tabulated in Table 17, (see Appendix).

(iv) Diarrhea Treatment and Management by LHV:

There were three different patterns of diarrhea treatment and management practiced by the LHVs. The pattern differed in individual cases depending upon the severity of diarrhea and the age of the child. Table 18 presents the pattern of treatment and management of diarrhea by the LHV as reported by the mothers (see Appendix).

E. Introduction of Solid Foods and Weaning Patterns

(i) Age Pattern of Solid Food Introduction:

The age pattern of solid food introduction observed at the time of registration of the sample population showed that only 31% of the children

were introduced to solid foods at the age of 3-5 months, and an additional 38% of the children received solid foods between 6-8 months of age. At least 31% of all the mothers introduced no solid foods before the child was 11 months old (Table 19, see Appendix).

(ii) Sex Preference:

No significant difference was reported by the mothers in introduction of solid foods due to sex preference. 102 of the mothers (94%) reported that they do not exercise any preference in introduction of solid foods or the type of foods.

(iii) Food Beliefs:

All foods within Unani (Greek) system of medicine are categorized as hot or cold or normal (neutral). Classification of a food into each of the categories varies from place to place and even from person to person.

Protein foods such as meats, fish, eggs and some pulses, as well as all vegetable oils and animal fats, are considered hot. Cereals like rice, and maize are considered both hot and cold as well as neutral. Cow's milk is considered neutral, whereas goat's milk, mother's milk and buffalo's milk are considered both hot and neutral. Hot foods should be eaten during cold season the cold foods during hot weather. 7/

During the "mini-studies" mothers were asked whether food given to children should be cooling, heating or normal (neutral) for proper growth. Mothers responses are presented in Table 20 below.

Table 20

Mothers' Understanding About Fitness of Food for Child's Health Improvement

Mothers Opinion about Food	No. of Mothers	Per Cent
It should be normal (neither hot nor cold)	49	45
It should be cooling	10	9
It should be heating	19	18
It should be according to the season	21	20
No response	9	8
	108	100

(iv) Mothers' Reactions to LHVs Advise:

The LHVs reported advising mothers regarding introduction of solid foods to children at 4 to 6 months for proper growth and weight gain. Tables 21 and 22 present data on two of these aspects.

Table 21

Mothers' Reactions to LHVs Advise About Solid Food Introduction

Solid Food Introduction	No. of Mothers	Percent
LHVs' Advice Effective	89	82
LHVs' Advice Non-effective	19	18
	108	100

Table 22

Changes in Children's Weight as Reported by Mothers after Solid Food Consumption

Solid Food Consumption	No. of Mothers	Percent
Child Weight Significantly Improved	78	72
Child Weight Slightly Improved	3	3
Child Started Losing Weight (diarrhea started)	3	3
Child Weight Remained Static	13	12
No Solid Food Introduced	11	10
	108	100

(v) Changed Pattern in Solid Food Introduction:

At the beginning of the "mini"-studies" the age was recorded at which solid food was introduced. Seven months later, in July 1979, data were collected to find out the changes in this pattern due to the motivation of mothers through introduction of Child Weight Card System. Data indicate that a significant change has occured in the mothers' behavior. Eighty-five percent of the mothers reported introducing solid food supplements to the 3-6 months age group by the end of July 1979, as compared to 58% mothers who reported to be giving solid foods to 3-6 month old children in January 1979. Late introduction of solid foods at the age of 24-26 months as was in January 1979 was not reported in July 1979 by any mother (Table 23, see Appendix).

(vi) Types of Solid Foods:

A wide range of foods were reported by the mothers which are introduced as the solid weaning or supplemental foods. No one food is given by all the mothers all the time. The solid foods generally given are grouped in two major categories:

1. roti, biscuits, dalia (porridge), suji (semolina)
2. rice, kichri, kheer (rice pudding), bananas

The two groups are used approximately equally.

IV. DISCUSSION AND CONCLUSIONS

The primary objective of the "mini-studies" was to provide insights into the essential steps needed to evoke a useful response to community based nutrition education efforts. Mothers exercise choice for better or worse when it comes to food for children. The choices for food arise from the socio-economic milieu to which communities are subject, as well as the environmental influences prevailing at a certain point in time. The socio-economic milieu has been undergoing a rapid change in rural Pakistan. Infiltration of new ideas has been taking place more swiftly than expected through construction of new roads, wide-spread use of motorcycles, Suzuki vans, spread of adult literacy and more schools in the rural areas. An obvious change in the food habits of the rural populations is taking place. The use of processed foods is gaining popularity, possibly due to increased communication and widespread advertising of processed foods through radio and television. Another possible reason for this change is that the people working in the Middle East and U.K. return home with modern ideas on lifestyles. On the other hand, literacy, income or occupation of the mothers visiting the MCH Centers seemed to have less effect on the rate of participation of mothers in child care training once they are reasonably motivated and have grasped the purpose of the training.

There is little doubt that person-to-person discussions lead to active joint participation of the teacher and student with both undergoing a teaching - learning process at the same time. If this process is backed up by innovative simple educational tools, such as the introduction of the child weight cards which arouse interest, motivation occurs with greater intensity.

Conclusions:

Conclusions drawn from the results obtained through the "mini-studies" field probes include:

(i) Child Weight Cards:

The mothers preferred the 'C' type card which was colorful and conveyed the message easily. The retention rate of the 'C' type card was 100% whereas 23% of the mothers dropped out of the groups who received 'A' and 'B' cards.

(ii) Management and Treatment of Diarrhea:

The mothers' motivation was also reflected in the management and treatment of diarrhea and 43% of the mothers acted upon the advice of the local homeopath, relatives or their own home remedies. Within a short period of five months after the introduction of the Child Weight Card System, the self-medication rate was dropped to 17% and the consultation rate with the LHV went as high as 83%.

The effect of mothers' participation in the child weighing program was also reflected in the decline of the rate of diarrheal prevalence, which dropped down from 88% to 61% within five months time. This happened despite the fact that July and August is usually a very high prevalence period for diarrheal infection due to rains and highly polluted drinking water from shallow wells, ponds and irrigation channels.

(iii) Introduction of Solid Foods:

Once the mothers were motivated, changed behavior in the introduction of solid food at an early age was easy to achieve. At the beginning of the "mini-studies" only 58% of the mothers were giving solid foods to their children at 3-5 months of age. In July 1979, 85% of the mothers started introducing solid foods to their children between 3-6 months of age. Seventy-two percent of the mothers reported significant weight gains in their children by adopting the new practice.

V. RECOMMENDATIONS

Dissemination of information relating to child feeding and care is a key recommendation. Besides training mothers about the importance of food supplements, information about the preparation of low-cost suitable solid foods prepared from the local ingredients and importance of hygienic handling and feeding practices, as well as management of diarrheal dehydration by practising oral rehydration, has to be imparted. The most important message to communicate (and given the nature of the problem in Pakistan it should take precedence over all others) is the need to initiate solid food supplementation of the child's diet at the age of four months and not to abandon such feeding during diarrheal infection. This can be implemented by mother's classes in the MCH Centers and person-to-person teaching through community out-reach to the rural communities in the villages.

The prerequisite of any Training - Education - Communication (TEC) System for successful operation is dependent on motivation and active participation of the mothers in the process of child health improvement efforts. This system can be used with a base at the community level and in a primary health care program, which could be equipped with outreach capacity (through village workers) and an effective information feedback and built-in-Reporting-Evaluation-Monitoring System, such as:

- an on-going child weight program, which regularly plots the growth curve of the child against reference on a card kept by the mother (with a copy at the center);

- educational materials in nutrition, health and family planning; and

- better structured training techniques of the village workers, mid-level workers, programmers, planners, administrators and managers.

In terms of combating malnutrition the network could contribute in three ways. It could:

- provide a vehicle for information dissemination:

- increase the real income of disadvantaged families through provision of medical supplies and foods; and

- combat malnutritional problems directly through provision of services and supplies.

VI. REFERENCES

1. Micro-Nutrient Survey of Pakistan (1976-77), Vol. 1. Nutrition Cell, Planning and Development Division, Government of Fakistan, Islamabad, June 1978.

2. Khan, M.A., J. Hammer and L.E. Lynch, "Pakistani Standards for Pre-School Child Feeding and Growth." Nutrition Cell, Planning and Development Division, Government of Pakistan, Islamabad, 1978.

3. Nutrition Survey of West Pakistan (Feb. 1965-Nov. 1966) Directorate of Nutrition Survey and Research, Ministry of Health, Labor and Family Planning (Health Division), Government of Pakistan, June 1970.

4. Jalil, Fahmida, "A Study in Factors Favorable and Adversely Affecting the Growth and Development of Pakistani Infants." Department of Social and Preventive Paediatrics, King Edward Medical College, Lahore, 1972.

5. The First Phase of Lehtrar Applied Nutrition Project (February 1968-June 1969). A Progress Report. Directorate of Nutrition Survey and Research, Ministry of Health, Labor and Family Planning (Health Division) Government of Pakistan. September 1969.

6. Undre, H.R. "A Pilot Study for the Solution of Nutrition Problems of Pakistan," Karachi, Pakistan, Journal of Medical Research. Vol. XI, No.3 pp. 50-90, July 1972.

7. Zeitlin, M. A Three Months (April-June, 1972) Study of Traditional Beliefs About Foods in West Pakistan. USAID Report, Islamabad, Pakistan, July 1972.

APPENDIX

1. Tables

2. Samples of Weight Cards Used in the Studies

Table 2

Voluntary Agencies MCH Centers

Name of the Voluntary Agency	No. of MCH Centers
1. All Pakistan Women's Association	90
2. H.R.H. The Agha Khan Health Board	82
3. Christian Hospitals Association of Pakistan	66
4. Pakistan Family Welfare Council	36
5. Red Crescent Society	60
6. MCH Association	17
7. St. John Ambulance	10
8. T.B. Association	10
9. Others	629
Total	1,000

Table 3

LIST OF MCH CENTERS SELECTED FOR THE MINI-STUDIES

Province	Location of MCH Center	Voluntary Agency Operating MCH Center
Punjab	1. Komoki, Gujranwala	Family Welfare Council Lahore
	2. Khanewal, Multan	T.B. Association, Punjab
	3. Kabirwala, Multan	Red Crescent Society
	4. Islamabad	Social Welfare Council, Rawalpindi
Sind	5. Orangi, Karachi	APWA, Karachi
	6. Sultanabad (Mirpurkhas)	HRH The Agha Khan Health Board, Karachi
	7. Sukkur	HRH The Agha Khan Health Board, Karachi
NWFP	8. Bara Gate, Peshawar	Red Crescent Society Peshawar
	9. Saidu Sharif, Swat	Red Crescent Society, Peshawar
Baluchistan	10. Quetta	Lady Dufferin Hospital Quetta

Table 4

Age Distribution of Children of the Sample Population By Province

Age in Months	Male	Female	Total	Punjab				Sind				Baluchistan				NWFP			
				Male		Female		Male		Female		Male		Female		Male		Female	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
0-6	6	5	11	1	4	-	-	2	11	2	11	1	8	-	-	2	15	3	100
7-12	25	10	35	9	36	3	18	6	33	7	39	7	59	-	-	3	23	-	-
13-18	16	12	28	6	24	10	59	5	28	2	11	1	8	-	-	4	31	-	-
19-24	12	04	16	6	24	1	6	5	28	3	17	-	-	-	-	1	8	-	-
25-30	10	04	14	3	12	-	-	-	-	4	22	3	25	-	-	4	8	-	-
31-36	2	2	4	-	-	2	17	-	-	-	-	-	-	-	-	2	15	-	-
Total	71	37	108	25	100	16	100	18	100	18	100	12	100	-	-	16	100	3	100

Table 5

Families with Children Under Five Years of Age in the Sample Population

No. of Children Under 5 Years	No. of Families	Percent
1	33	31
2	61	56
3	11	10
4	2	2
5	1	1
	108	100

Table 6

Total Living Children and Household Size of Families in the Sample

No. of Total Living Children	Household Size	No. of Families	Percent
1	3	15	14
2	4	13	12
3	5	18	17
4	6	15	14
6	8	26	24
7	9	11	10
8	10	7	6
9	11	1	1
10	12	1	1
11	13	1	1
		108	100

Table 7

Educational Level of Husbands and Wives of the Sample Population

Husbands			Wives		
Years attended school	No.	Percent	Years attended school	No.	Percent
0	26	24	0	66	61
3	1	1	2	3	3
4	3	3	4	6	6
5	13	12	5	1	1
6	2	2	6	1	1
7	4	4	7	7	6
8	9	8	8	2	2
9	3	3	9	8	7
10	28	26	10	5	5
12	8	7	12	-	-
14	6	5	14	9	8
16	3	3	-	-	-
17	2	2	-	-	-
	108	100		108	100

Table 8

Husband and Wife Occupation of the Sample Population

Husbands			Wives		
Occupation Category	No.	Percent	Occupation Category	No.	Percent
Govt. Service	40	37	Govt. Service	7	6
Private Service	42	39	Private Business	5	5
Own Business	8	7	Own Business	1	1
Agriculture			Agriculture		
Laborer	13	12	Laborer	1	1
Jobless	4	4	Housewife	94	87
Bagger	1	1	-	-	-
	108	100		108	100

Table 9

Monthly Income of Husband and Wife in the Sample Population

Husband			Wife		
Income Rs./Month Up to	No.	Percent	Income Rs./Month Up to	No.	Percent
200	6	6	50	1	1
300	15	14	60	1	1
400	13	12	100	1	1
500	13	12	200	2	2
600	9	8	250	1	1
700	7	6	300	3	3
800	9	8	400	1	1
900	2	2	500	1	1
1000	9	8	560	1	1
1500	2	2	600	2	2
No Income (presently)	4	4	No Income (presently)	94	86
No Response	19	18	-	-	-
	108	100		108	100

Table 11

Frequency of Mother's Visits to MCH Centers for Child Weighing

No. of Visits Each Month	No. of Mothers	Percent
One	5	5
Two	49	45
Three	54	50
	108	100

Table 12

Mothers' Comprehension of the Purpose of the Child Weight Cards

Purpose of Cards	No. of Mothers	Percent
Health Improvement	19	17
Weight Check-Up	84	78
Other	5	5
	108	100

Table 13

Rate of Prevalence of Diarrhea in Sample Children Before and After Child Weight Cards were Introduced

	No. of Children with Diarrhea	Percent	No. of Children with no Diarrhea	Percent
Before Child Weight Cards Introduced (Jan. 1979)	95	88	13	12
After Child Weight Cards Introduced (July 1979)	66	61	42	39

Table 14

Consultation Pattern Among Mothers Regarding Diarrhea Treatment

Person Consulted	No. of Mothers	Percent
LHV	44	41
Doctor	17	16
Local Homeopath	1	1
Relatives	4	4
Others	1	1
Own	41	37
	108	100

Table 15

Changed Consultation Pattern Among Mothers Regarding Treatment and Management of Diarrhea

Person Consulted	No. of Mothers	Percent
LHV	90	83
Others	18	17
	108	100

Table 16

LHV Effectiveness in Treating and Advice Regarding Management of Diarrhea

Responses	No. of Mothers	Percent
Always Effective	83	77
Sometimes Effective	4	4
Not Effective	21	19
	108	100

Table 17

Pattern of Diarrhea Treatment by Mothers in the Sample Population

Kind of Treatment	No. of Mothers	Percent
Medicine with Oral Rehydration	51	48
Glucose Solution Only	3	3
Sugar and Salt Solution Only	14	13
Oralyte Only	4	4
White of Egg Only	7	6
Boiled Water Only	9	8
Milk with Herbs Only	7	6
Rice Gruel Only	8	7
Opium Only	5	5
	108	100

Table 18

Pattern of Diarrhea Treatment and Management by the LHVs as Reported by the Mothers

Pattern	No. of Mothers	Percent
Medicines + Oral Rehydration + Light Diet (milk, rice)	61	57
Medicines + Oral Rehydration + Egg	21	19
Medicines + Oral Rehydration + Other Foods (cereals, fruits, vegetables)	26	24
	108	100

Table 19

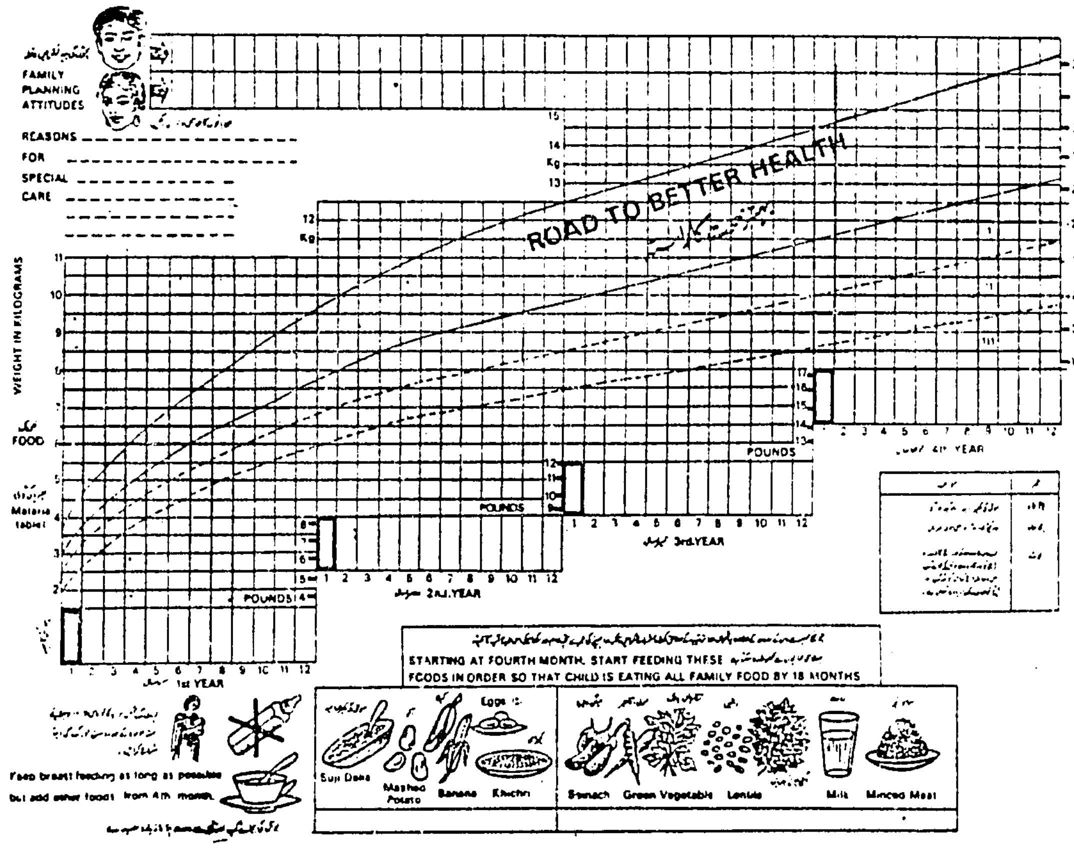
Age Pattern of Solid Food Introduction to Children in the Sample

Solid Food Introduction Age Groups in Months	No. of Children	Percent
0-2	-	-
3-5	34	31
6-8	41	38
9-11	4	4
12-14	26	24
24-26	3	3
	108	100

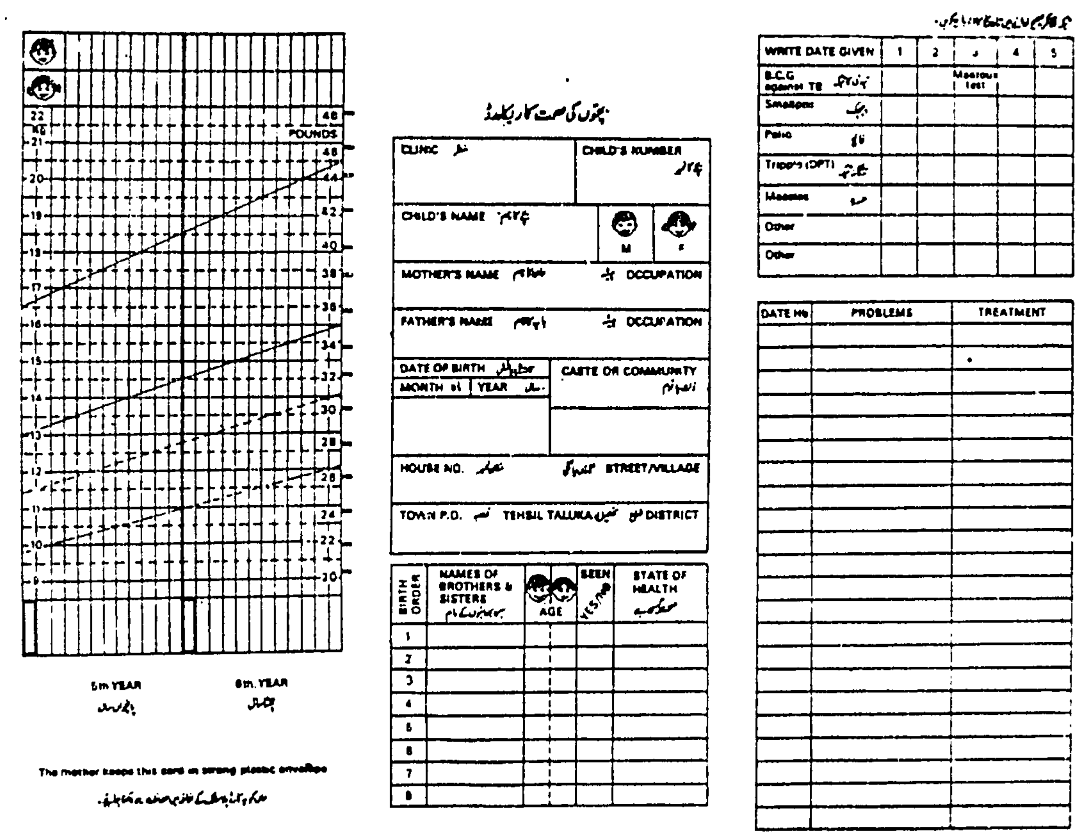
Table 23

Solid Food Introduction Before And After Child Weight Card System Introduced

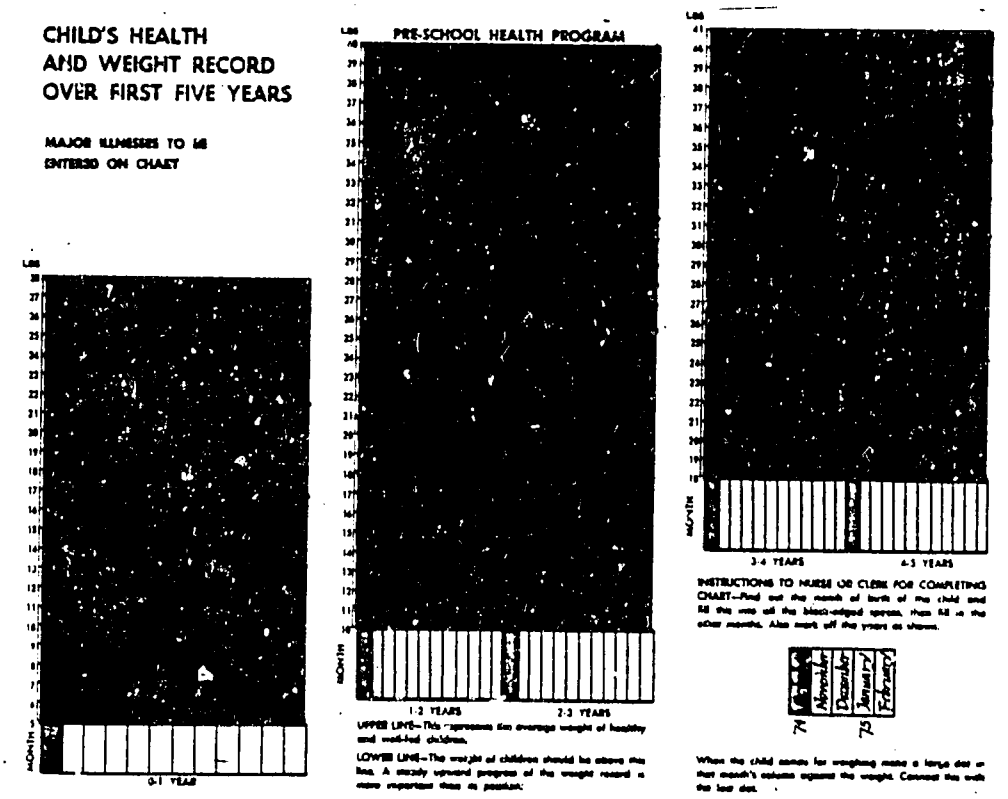
Age Solid Food Introduced	Before Child Weight Card Introduced (Jan. 1979)		After Child Weight Card Introduced (July 1979)	
	No. of Mothers	Percent	No. of Mothers	Percent
3-6 Months	63	58	92	85
7-14 Months	42	39	16	15
24-26 Months	3	3	-	-
	108	100	108	100



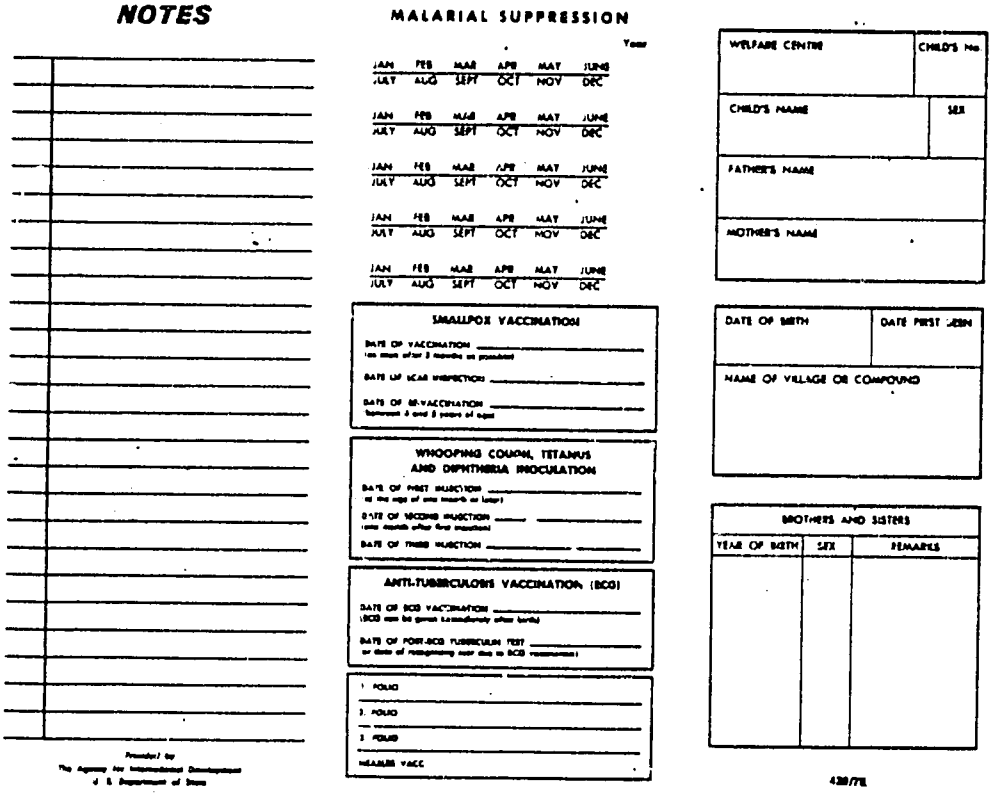
Front View of Type 'A' Card



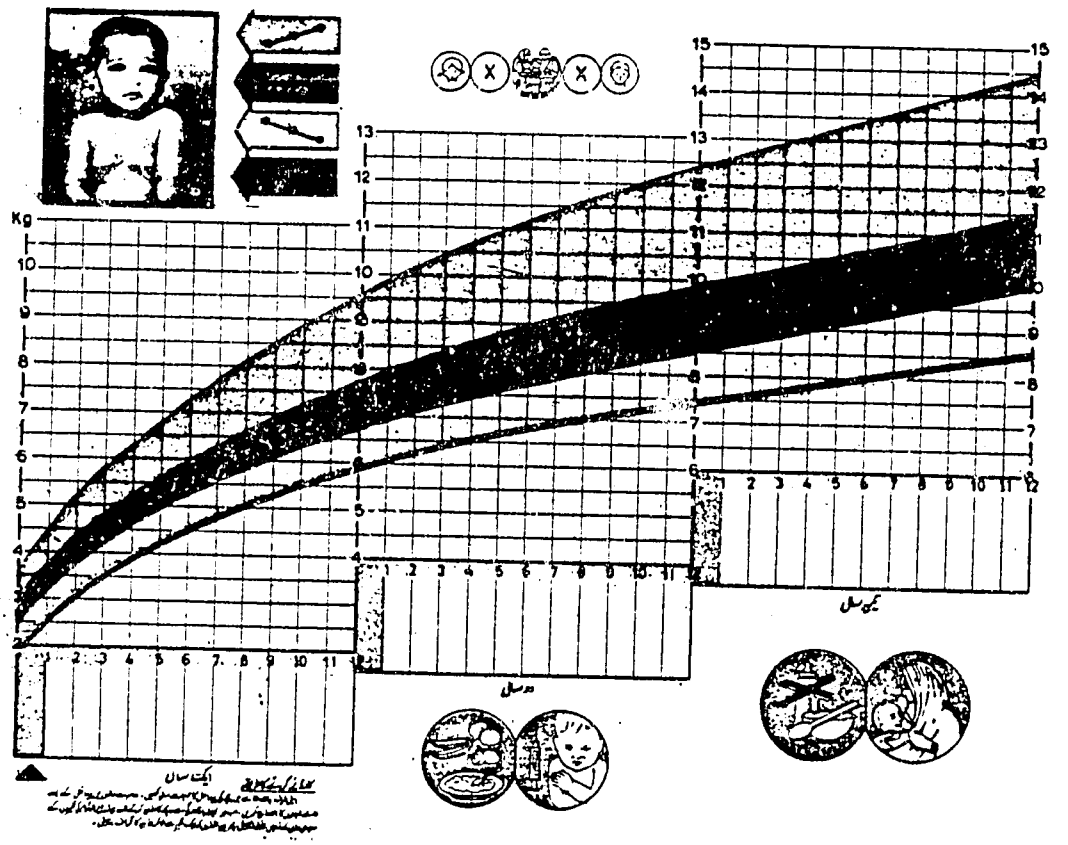
Back view of Type 'A' Card



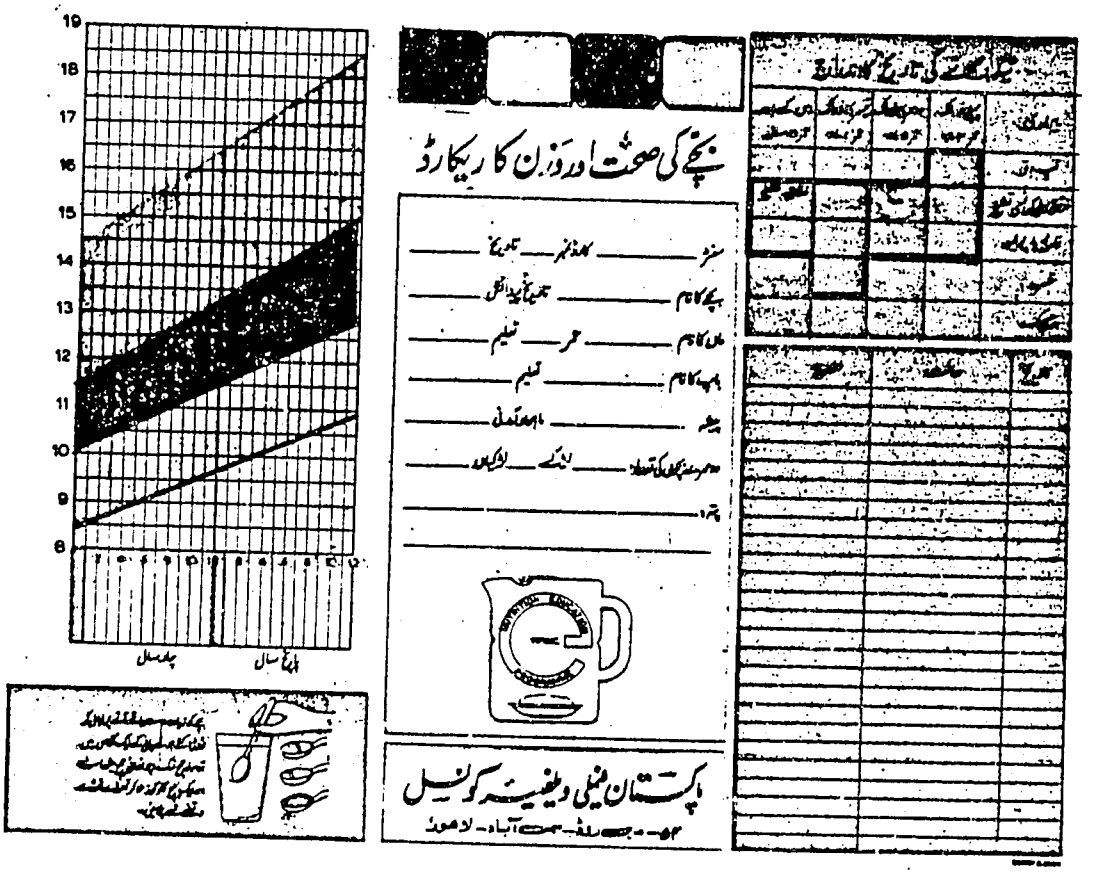
Front view of Type 'B' Card



Back view of Type 'B' Card



Front view of Type 'C' Card



Back view of Type 'C' Card