Bureau of Educational Research, Kenyatta University College and
Africa Study Centre, Leiden, Netherlands

Nutrition Intervention Research Project
Report No. 10

FAMILY LIFE TRAINING CENTRES, KENYA, 1978

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1979

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This report is one of a series by the Nutrition Intervention Research Project; studies of child nutrition programmes in Kenya, particularly in Central Province. The aim of these reports is to make some results of these studies quickly available; the data are only partially analyzed and the reports therefore preliminary.

This project is financed by the African Studies Centre, Leiden, Netherlands and is based at the Bureau of Educational Research, Kenyatta University College.

Other reports:

A. Nutrition Intervention and Environment, Research Proposal, 1976.

1. Progress report, April, 1977

2. Progress report, November, 1977

3. A short dictionary of Kikuyu names of foods, meals and drinks, 1977

4. Report on the Family Life Training Centres, Bungoma, Busia, Kisumu, Kiambu and Muranga; 1977

5. Revised Research Plan, February 1978

6. Progress report, July 1978

7. Classification of foods among the Kikuyu, 1978

8. Preference of Kikuyu mothers for children's foods, 1978

9. Progress report, February, 1979

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SUMMARY

The Family Life Training Programme has gone through a rapid development over the past two years. Two centres were added to the programme, attendances at the centres in Western Kenya have almost doubled. The number of women attending at Kisumu FLTC is by now so large that it is advisable to reconsider the admission policy at this centre with respect to the available accommodation and staff as well as absolute numbers. Attendance at the centres in Kiambu, Muranga and Kirinyaga is much lower and it is surprising that during 1978 two of tnese centres still adhered to a fixed admission date for starting a course.

Regardless the number of attendances it appears that the catchment area of most centres is restricted to one or two divisions, this is particularly so for all the centres in Central Kenya except Muranga FLTC. If the centres are meant to function as district centres inter-divisional contacts must be improved. The most obvious way to achieve this is through closer cooperation with medical services at the district level.

The social background of the cases in Western Kenya and in Central Kenya indicates that there is no mean difference in the task faced by the staff - and the mothers - in the two areas. In Western Kenya where traditional child feeding practices and inexperience of the mothers seem to play an important role an educational approach seems warranted. In Central Kenya, with its large group of almost destitute mothers, it is doubtful whether education can help very much. Possibly at these centres more emphasis should be placed upon recovery of the child even if this means a longer stay at the centre. Here, many women are also in need of assistance after their discharge from the centre. Ways and means should be found for this.

Most children gain some weight during their stay. However, the high percentage of children in Bungoma and Kiambu FLTC that show a weight loss by the end of their stay is reason for concern.

The policy of admitting the siblings of malnourished children is justified by the finding that many of them, when not showing signs of acute malnutrition, show signs of previous malnutrition. They too benefit from the stay at the centre.

In view of the previously outlined differences between the backgrounds of the cases in Western Kenya and Central Kenya it might be worthwhile considering the appointment of two regional supervisors to be stationed in the field. A regional supervisor is particularly warranted for the centres in Western Kenya both because of the large number of attendants and the distance from the central staff in Nairobi. Such supervisors would be most useful if they were medically trained so that they could not only provide the necessary assistance to and supervision of the staff at the centres but could also take some responsibility for the medical condition of the children.

Table 1. NATIONAL PROGRAMME, STAFF AND EXPENDITURE

Central staff, Nairobi	5
Field staff, 7 centres	33
Recurrent expenditure (Kenya Government)	Sh 276,000 (period July 78/79)
Salaries (Kenya Government)	Sh 304,000* (period July 78/79)
Food expenses and transport (UNICEF)	Sh 302,000 (period January 78/79)
Total, recurrent expenses	Sh 882,000

*Estimated at 20% above minimum salaries of job group concerned; does not include salaries of the central staff

Table 2. ACCOMMODATIONS AND STAFF (5)

	Kisumu	Bungoma	Busia	Kiambu	Muranga	Kirinyaga	Machakos
Cottages	8	15 beds*	13	8	16	8	7
Staff	6	6	6	4	3	3	5
Staff, charged with the daily care of the attendants	5	3	4	3	3	2	3

*The accommodation at Bungoma consists of one ward.

INTRODUCTION

Seven Family Life Training Centres were operating in Kenya during 1978.[1] Three, Kisumu, Bungoma and Busia are in Western Kenya; the other four, Kiambu, Muranga, Kirinyaga and Machakos FLTC[2] are in the centre of the country. Family Life Training Centres admit mothers[3] with malnourished children for a 3 week course of nutrition, health and agricultural education. The children are treated with a balanced diet which is prepared by the mothers with staff supervision.

This second report prepared for the Ministry of Social Services (MSS) by members of the Nutrition Intervention Research Project[4] presents an analysis of attendance during 1978, the condition of the children at admission and their progress during the stay at the centres and a discussion of some important social factors. This report is based on the data in the individual case record forms. A copy of this form is added in the appendix.

The FLTC programme employs a central staff of five based in Nairobi. They direct and support the field staff of 33, a ratio of 6.5 to 1, not high considering the wide geographical distribution of the different centres. MSS officials at local level also supervise and assist the staff at the centres. The recurrent expenditure on the programme is estimated at 880,000 shillings. This does not include development votes or other capital investments (table 1). The accommodation available and staff employed at the different centres are listed in table 2.

Table 3. ATTENDANCE[6]

	Kisumu	Bungoma	Busia	Kiambu	Muranga	Kirinyaga	Machakos	Total
Courses	12	12	12	11	12	11	13	83
Women	664	306	232	73	126	74	159	1634
Children	859	474[7]	367	227[7]	288	159	262	2636
Women & Children	1523	780	599	300	414	233	421	4270

Table 4. OCCUPANCY RATES AND ATTENDER-STAFF RATIOS

	Kisumu	Bungoma	Busia	Kiambu	Muranga	Kirinyaga	Machakos
Women per course	55	26	19	7	11	7	12
Children per course	72	39	31	20	24	14	20
Total, women and children per course	127	65	50	27	35	21	32
Children per woman	1.3	1.6	1.6	3.1	2.3	2.2	1.7
Women per staff member per course	11.1	8.5	4.8	2.2	3.5	3.4	4.1
Women and children per cottage per course	15.9	–	3.9	3.4	2.2	2.6	4.6

Table 5. PERIOD OF RESIDENCE AT THE CENTRE

	Kisumu N=660*	Bungoma N=270	Busia N=225	Kiambu N=68	Muranga N=126	Kirinyaga N=74	Machakos N=158*
Less than 2½ weeks (17 days or less)	-	9	16	-	14	24	3
2½ - 3½ weeks (18-24 days)	97	89	59	100	72	73	97
More than 3½ weeks (25 days or more)	3	2	25	-	14	3	-
	100%	100%	100%	100%	100%	100%	100%

* N given with each centre indicates the number of records from which the various percentages have been calculated.

ATTENDANCE

Four centres organised 12 courses during 1978, two centres 11 courses and one, Machakos, even managed 13 courses (table 3). In total, 83 courses were attended by 1634 mothers and 2636 children, an increase of 75% compared with 1976. The three centres in Western Kenya accounted for about 70% of the admissions. The centre in Kisumu admitted 650 women, more than twice the number admitted at the next centre, Bungoma with 300 mothers. The centres in Busia, Muranga and Machakos had 125-250 attendances each, while the centres in Kiambu and Kirinyaga each admitted about 75 mothers.

The average number of women and children per course shows the same type of distribution and varies from 127 in Kisumu to 21 in Kirinyaga (table 4). Accommodation, however, does not keep pace with this. In Kisumu there was an average of 16 women and children per cottage, a condition of severe overcrowding. Although 8 more cottages became available at this centre in 1979, this would only reduce the number to 8 per cottage (if the total number of attendances remains the same, which is unlikely), twice the number of that at the other centres. The centre at Bungoma, with a capacity of 15 beds, is also overcrowded, although to a lesser extent with an average of 26 women per course. The centres in Kiambu and Kirinyaga had, on average, only 7 mothers per course.

Attender-staff ratios reflect the same skewed distribution, 11 mothers per staff member in Kisumu, 8.5 in Bungoma, between 2 and 5 in the other centres. In 1976, the average number of mothers per course and attender-staff ratios at these two centres were about half of those for 1978. In Busia these figures have increased by 50%, but in Kiambu and Muranga they remain the same. One wonders whether the Kisumu centre

Table 6. GEOGRAPHICAL DISTRIBUTION WITHIN AND OUTSIDE THE DISTRICT

	Kisumu N=660	Bungoma N=274	Busia N=232	Kiambu N=68	Muranga N=126	Kirinyaga N=74	Machakos N=159
Nyando	50						
Kisumu	25						
Bungoma, central		61					
Kimilili		21					
Busia, central			66				
Limuru				90			
Kandara					25		
Kigumo					28		
Kiharu					10		
Makuyu					36		
Mwea						88	
Machakos, east							88
Other divisions within the district	8	-	-	10	-	12	11
Outside the district	17	18	34	-	1	-	1
	100%	100%	100%	100%	100%	100%	100%

Table 7. DISTANCE OF RESIDENCE FROM THE CENTRES

	Kisumu N=656	Bungoma N=171	Busia	Kiambu N=54	Muranga	Kirinyaga N=56	Machakos N=138
01 - 09 km	24	21	*	68	*	40	51
10 - 19 km	27	16	*	12	*	20	20
20 - 29 km	14	25	*	6	*	20	10
30+ km	35	38	*	14	*	20	19
	100%	100%		100%		100%	100%

*Busia and Muranga omitted because distance recorded in less than 20% of the cases.

Table 8. SOURCES OF REFERRAL

	Kisumu N=660	Bungoma N=264	Busia N=190	Kiambu N=66	Muranga N=121	Kirinyaga N=74	Machakos N=151
Former attendant	90	47	31	27	1	1	-
Staff centre and other MSS officials	-	4	-	24	30	10	9
MoH official	8	43	46	44	62	85	80
Others	2	6	23	5	7	4	11
	100%	100%	100%	100%	100%	100%	100%

is developing into a treatment centre where, because of sheer numbers, there is little possibility of effective teaching and training. The average number of children per mother shows an inverse ratio: 1.3 in Kisumu and 3.1 in Kiambu. This too, suggests that the first centre is mainly restricted to treating malnourished children. It may be time to reconsider the admission policy in Kisumu.

Most women stayed for the usual period of 3 weeks, although about 10-20% leave before 2½ weeks are up.(8) Some women stay longer than 3½ weeks; in Busia and Muranga this is 25% and 14% of the cases respectively (table 5).

CATCHMENT AREA AND REFERRALS

Family Life Training Centres primarily serve the district in which they are situated. Only the centres in Western Kenya have a considerable proportion of attendances from outside their districts, although even here most cases come from only one or two divisions. The catchment areas in Central Kenya are even more restricted, these centres effectively function only for the division in which they are situated (table 6). The exception is Muranga FLTC which draws its cases from all over the district. The distances that mothers live from the centres essentially confirm the previous pattern; attention may be drawn towards Kiambu and Machakos, where 68% and 51% of the women respectively live within a radius of 10 km (table 7).

Most patients are referred by women who were themselves once admitted or via officials of the Ministry of Health. In Kisumu 90% of the women are referred by previous participants although in the other centres referrals are mainly through the health services (table 8).

Table 9. RELATION BETWEEN ATTENDANT AND MALNOURISHED CHILD

	Kisumu N=664	Bungoma N=268	Busia N=206	Kiambu N=68	Muranga N=126	Kirinyaga N=73	Machakos N=156
Mother	99	85	91	99	98	97	96
Grandmother	1	8	6	-	2	-	2
Others	-	7	3	1	-	3	2
	100%	100%	100%	100%	100%	100%	100%

Table 10. AGE DISTRIBUTION OF MOTHERS

	Kisumu N=491	Bungoma N=182	Busia N=66	Kiambu N=35	Muranga N=53	Kirinyaga	Machakos N=122
- 20 years	11	10	18	-	-	*	3
20 - 29 years	60	50	53	49	45	*	47
30 - 39 years	24	26	26	49	51	*	38
40 + years	5	14	3	2	4	*	12
	100%	100%	100%	100%	100%		100%

*Recorded in less than 20% of the cases.

THE SOCIAL BACKGROUND OF THE CASES

In the previous report (NIRP, 1977) we pointed tentatively at some differences in the social background of the women attending the different centres. Since then, new case record forms which are more specific than the old ones and provide more reliable information have been introduced (see appendix). The following is a description and comparison of the mothers at the different centres. Occasionally reference will be made to estimates for the general or provincial population which tells us something more about the causes of malnutrition in the different areas.(9)

In all except one of the centres, over 85% of the mothers are from one ethnic group. In Kisumu 99% are Luo, in Bungoma 90% of the mothers are Luhya. Busia is the only centre with a relatively mixed population, 75% of the mothers are Luhya, 22% are Luo. In Kiambu, Muranga and Kirinyaga, the participants are predominantly Kikuyu, 90%, 85% and 96% respectively. In Machakos 99% of the women are Kamba. This is a favourable situation since most women share a common food culture.

Most children are brought to the centres by their mothers; it is only in Bungoma and Busia that 7% of the children are accompanied by their grandmothers, while in Busia another 7% are brought in by others, usually other relatives (table 9).

About half of the women are between 20 and 29 years of age. It is interesting to note that women younger than 20 years of age are found only in the centres in Western Kenya where they constitute between 10-20% of the cases. Such young girls are virtually absent from the centres in Central Kenya (table 10).

Table 11. NUMBER OF OWN CHILDREN IN HOUSEHOLD

	Kisumu N=661	Bungoma N=246	Busia N=221	Kiambu N=68	Muranga N=123	Kirinyaga N=73	Machakos N=152
1	12	22	26	2	11	15	14
2 - 3	37	39	40	35	44	45	37
4 +	53	39	34	63	45	40	49
	100%	100%	100%	100%	100%	100%	100%

Table 12. INCIDENCE OF PREGNANCIES

	Kisumu N=662	Bungoma N=254	Busia N=226	Kiambu N=66	Muranga N=123	Kirinyaga N=73	Machakos N=150
	29%	31%	24%	21%	11%	22%	10%
Provincial estimates *	17%	18.5%	18.5%	20%	20%	20%	14%

* Estimates from census data reported by Ominde, 1974, p. 41.

The number of children in the household to which the woman herself has given birth (as opposed to the total number of children in the household) is listed in table 11. About 40% of the women have 2-3 children of their own and 40-50% have 4 or more of their own children to look after, although the latter percentage varies considerably. Exceptions are Kiambu where 65% of the women have 4 or more children and few women have only one child. In Bungoma and Busia, on the other hand, 20-25% of the women have only one child, while the percentage of women with 4 or more children is much lower at these centres.

Apparently the centres in Western Kenya admit a large group of young women with their first child. The centres in Central Kenya on the other hand have a large group of older women with several children.

There is also a slight difference in the incidence of pregnancies among the women admitted to the centres (table 12). In the centres in Western Kenya, 25-30% of the women are pregnant, in Central Kenya this percentage is about 15%, which is much closer to the average for the general population in the areas. This suggests that in Western Kenya pregnancy of the mother plays some role in the occurrence of malnutrition.

Variations between the educational level of the women at the centres are not great, although it appears that the women admitted to Kiambu, Kirinyaga and Machakos centres are slightly more educated than the women in Busia and Muranga (table 13).

The main differences between the mothers at the different centres are with respect to marital and family situation and available resources. In this respect the centres fall into two groups, those in Western Kenya and those in Central Kenya with the Kiambu FLTC taking an independent position.

Table 13. EDUCATION OF MOTHER

	Kisumu N=660	Bungoma N=260	Busia N=232	Kiambu N=67	Muranga N=126	Kirinyaga N=74	Machakos N=156
No education	55	61	76	48	71	58	47
Standard 1 - 4	30	18	14	25	15	15	24
Standard 5 and more	15	21	10	27	14	27	29
	100%	100%	100%	100%	100%	100%	100%
Provincial estimates of women with no formal education *	89%	69%	69%	68%	68%	68%	73%

*Estimated from CBS, 1977, p. 24, 27.

Table 14. MARITAL SITUATION OF MOTHER

	Kisumu N=660	Bungoma N=256	Busia N=223	Kiambu N=68	Muranga N=125	Kirinyaga N=74	Machakos N=149
Married and husband provides support	69	44	41	15	36	51	63
Married and husband provides little or no support	21	41	45	44	25	14	9
Single	2	5	4	9	9	9	10
Separated, divorced, widowed	8	10	10	32	30	26	18
	100%	100%	100%	100%	100%	100%	100%
Provincial estimates of single, separated, divorced and widowed women *	9%	13.5%	13.5%	19%	19%	19%	24%

*Estimated from CBS, 1977, p. 24, 26.

At least 85% of the mothers in Western Kenya are married, 10% are separated from their husbands, and less than 5% are single (table 14). At the centres in Central Kenya, however, only 60-70% of the women are married, 20-30% are separated from their husbands and 10% are single. The percentage of women without husbands is much higher than estimates for the region, which strongly indicates that in Central Kenya marital problems are an important factor in the aetiology of malnutrition.

Among the married women, the incidence of reported polygamy is 50-60% in Bungoma and Busia (table 15). In Kisumu and Central Kenya it is 35%, except in Kiambu where it is only 8%. The regional estimates suggest that polygamy plays a role in the aetiology of malnutrition in Bungoma and Busia.

In Bungoma, Busia and Kiambu, many married women report that their husbands provide very little or no support. In the other centres this percentage is between 15 and 30% (table 14). From these combined data it appears that the women in the Kisumu centre have the most stable marital background; 70% are not only married but also report that they receive support from their husbands. In Machakos, 60% of the women are married with support while in Bungoma, Busia and Kirinyaga the percentage drops below 50%. Among the women in Kiambu and Muranga only 15-30% fall in this group and it is very likely that in these cases this has contributed to the malnutrition of the children.

The figures on household composition (table 16) add further perspective to this. The average size of the household varies from 6.1 to 8.3. In Bungoma, Kirinyaga and Machakos there is an average of 3 adults (18 years and over) per household. In Bungoma this is probably related to the high incidence of polygamy, while it is known that in the Mwea

Table 15. INCIDENCE OF POLYGAMOUS MARRIAGES AMONG MARRIED WOMEN

	Kisumu N=589	Bungoma N=220	Busia N=192	Kiambu N=39	Muranga N=77	Kirinyaga N=48	Machakos N=109
	36%	66%	57%	8%	33%	29%	35%
Provincial estimates*	54%	40%	40%	22%	22%	22%	22%

*Estimates from CBS, 1977, p. 33.

Table 16. HOUSEHOLD COMPOSITION

	Kisumu N=661	Bungoma N=267	Busia N=227	Kiambu N=68	Muranga N=125	Kirinyaga N=74	Machakos N=154
Av. household size	6.2	8.3	6.1	6.8	6.4	7.3	7.8
Provincial estimates*	6.6	7.4	7.4	7.0	7.0	7.0	6.7
Av. no of adults	2.3	3.1	2.6	1.9	2.4	2.9	3.1
Av. no of children	3.9	5.2	3.5	4.9	4.0	4.4	4.8
Child-Adult ratio	1.7	1.7	1.4	2.6	1.7	1.5	1.5

*From CBS, 1977, p. 32.

rice irrigation scheme, next to which the Kirinyaga centre is situated, household size tends to be large, with several adults. On the other hand, in Kiambu there are only 1.9 adults per household, behind which lurks the fact that 40% of the women at this centre live alone with their children. At the same time there are 4.9 children per household in Kiambu more than at any other centre except Bungoma.
Since the presence of adults in the household can be both a help and a burden to the mothers it is difficult to comment on the meaning of the average as such. For that reason, the average number of children per adult in the household is a better indicator of the amount of attention that a mother can give to the youngest children. It is clear that the mothers in Kiambu can devote less attention to them than the mothers at the other centres.

The resources utilized by these women to support their families also differ greatly. The first and major difference is the land available for use (table 17). Under 10% of the women in Western Kenya have no land at all, while in Muranga and Kirinyaga 20-30% and in Kiambu 89% nave no land. The percentage of women who report that they have more than 1 acre available (less than 1 acre can probably not support a family), varies from 70-85% in Western Kenya and from 45-65% in Central Kenya with the exception of Kiambu where only 6% of the mothers had that amount of land. In fact, many of the women at this centre work as permanent or casual labour, often at the many large farms in the area (table 18). In Muranga a similar high percentage, 70%, report that they engage in paid labour but here land shortage is less than among the women in Kiambu. In Kisumu, Bungoma and Machakos the women hardly work as paid labour.

Table 17. ACREAGE AVAILABLE TO MOTHERS

	Kisumu N=665	Bungoma N=237	Busia N=230	Kiambu N=66	Muranga N=123	Kirinyaga N=74	Machakos N=136
No land	9	5	1	89	29	27	13
1 acre or less	22	8	19	5	27	18	20
More than 1 acre	37	21	33	5	23	15	36
More than 3 acres	32	66	47	1	21	40	31
	100%	100%	100%	100%	100%	100%	100%

Table 18. WOMEN ENGAGED IN CASUAL LABOUR OR PERMANENT EMPLOYMENT

	Kisumu N=664	Bungoma N=264	Busia N=231	Kiambu N=68	Muranga N=126	Kirinyaga N=74	Machakos N=157
Casual labour	1%	2%	26%	63%	71%	35%	5%
Permanent employment	1%	1%	4%	31%	2%	-	1%

In summary, it is clear that the cases in Western Kenya differ from those in Central Kenya. First, with respect to ethnic group, there are only Luo mothers in Kisumu; Luhya in Bungoma and Busia; Kikuyu in Kiambu, Muranga and Kirinyaga; and Kamba in Machakos.

The women at the centres in Western Kenya do not differ from the general population in the incidence of unmarried mothers or landless families. It seems that poverty and marital problems do not play a major role in the aetiology of malnutrition in this region, although in Bungoma and Busia half of the married women report that their husbands provide little or no support. Other causes must also be present and it is most likely that inexperience of the mother, traditional feeding practices, and the relation between mother and child are important here. The relatively high incidence of polygamy, young mothers, first born children and children with attendants other than their mother confirm this.

In Central Kenya it is surprising how little the Kamba mothers attending Machakos FLTC differ from the general population.

The Kikuyu women attending Kiambu, Muranga and Kirinyaga FLTC show an extremely high rate of unmarried and separated mothers, especially in Kiambu. Many mothers are landless and consequently dependent upon paid labour. It is evident that in Central Province poverty and marital problems do play a major role in malnutrition. It is interesting to note that these are not young women but mostly older women with several children. This suggests that these are women who have lost the battle with their unfavourable circumstances and who are no longer able to take adequate care of their children.

Table 19. AGE DISTRIBUTION OF INDEX CHILDREN

	Kisumu N=654	Bungoma N=258	Busia N=183	Kiambu N=66	Muranga N=104	Kirinyaga N=68	Machakos N=150
-12 months	20	9	15	33	22	31	23
13-24 months	38	31	41	38	38	35	31
25-26 months	25	25	21	15	16	18	17
37-60 months	15	20	14	11	10	9	21
60+ months	2	15	9	3	14	7	8
	100%	100%	100%	100%	100%	100%	100%

INDEX CHILDREN

The prime reason for admitting a woman is that one of her children is malnourished. Siblings of the malnourished child may accompany it for two reasons. First, because they are probably an undernourished group themselves and second, because it may not be easy for the mother to leave them in the care of others. For purposes of analysis we distinguish between the malnourished children requiring admission and their siblings. The first group will be referred to as 'index children'.

In most centres the sex distribution of the malnourished children is about equal except in Kirinyaga where there are slightly more boys than girls (62%). The age distribution of the index children is given in table 19. From 10-20% are younger than 12 months, 30-40% between 1 and 2 years of age and 40% of the children are older than that. In the centres in Central Kenya there are more young children, under one year of age, than in the centres in Western Kenya, especially Bungoma where 60% of the cases are older than 2 years.

This is also evident in the life stages which the children have reached with respect to separation from their mothers. The closeness of the African mother and her child has often been noted but interest is frequently drawn to the various breaks in this relation that necessarily follow, the increasing psychological distance between mother and child (Hoorweg and McDowell, 1979). The first drastic separation from the mother usually occurs with weaning. Depending upon the beliefs concerning pregnant women 'distance' may further increase when the mother again becomes pregnant. When the sibling is born the infant usually becomes the primary focus of the mother's attention.

The distribution of the index children through these four life stages is shown in table 20. Seventy percent of the children do not

Table 20. LIFE STAGE OF INDEX CHILDREN

	Kisumu N=664	Bungoma N=268	Busia N=214	Kiambu N=68	Muranga N=126	Kirinyaga N=72	Machakos N=155
Breast feeding	27	7	17	41	33	44	34
Weaned	26	34	25	13	28	11	23
Mother pregnant	24	22	22	16	10	21	5
Younger sibling present	23	37	36	30	29	24	38
	100%	100%	100%	100%	100%	100%	100%

yet have a younger sibling, confirming that malnutrition usually occurs at an early stage of life. 25% of these children are still on the breast, 25% have been weaned, and in 20% of the cases the mother is pregnant.

The pattern of life stages differs considerably from centre to centre. In the four centres in Central Kenya a relatively large group of children, 37%, is still on the breast while in the Western centres this is only 21%. At the latter centres 51% of the children have been weaned but as yet have no younger sibling, although 23% mothers are pregnant. In the centres in Central Kenya only 32% of the children have been weaned and have no younger sibling. For the moment we refrain from interpreting these differences because of the complex relations behind them which require further analysis. Nevertheless they too indicate that the aetiology of malnutrition in Western and Central Kenya differ. The differences fit with the social background of the cases outlined before.

In Central Kenya there are many social problems which do not wait for a particular life stage of the child to be felt. In Western Kenya malnutrition is more related to traditional practices concerned with weaning and pregnancy. The Luhya and Luo diet which consists of a low-protein staple food with a relish easily poses problems for young children. Often the food is served as a common family dish and after weaning the young child is expected to eat by himself. Unless the mother pays attention the food intake of the young child easily becomes inadequate.

During their first days at the centre the children are weighed and heights recorded. The condition of the children can be expressed as a percentage of the weight expected for the age of the child (the relevant standards can be found in Jelliffe, 1966). This percentage,

Table 21. WEIGHT-FOR-AGE (W/A) DISTRIBUTION OF INDEX CHILDREN*

	Kisumu N=630	Bungoma N=218	Busia N=165	Kiambu N=64	Muranga N=88	Kirinyaga N=63	Machakos N=136
-59%	32	32	40	15	37	25	48
60-79%	56	47	44	41	46	49	39
80% +	12	21	16	44	17	26	13
	100%	100%	100%	100%	100%	100%	100%

*Children older than 60 months are not included in this table, and are also omitted from tables 22, 23, 24.

weight-for-age (W/A), is an average of 100% for European children but between 80 and 90% for children in Kenya (CBS, 1977b). Children with W/A lower than 80% are generally considered malnourished; when W/A drops below 60% children are in a serious condition.

For all children under 5 years of age[9], W/A was computed; distributions for the different centres are presented in table 20. In most centres 30-40% of the index children are below 60% W/A and severely malnourished. A further 40-50% do not reach 80% W/A. The exception is the centre at Kiambu where the children are less severely malnourished than those at the other centres and where 40% of the index children had a W/A of more than 80%[10].

During 1978 height measurements were taken for the first time. For this year this information is both incomplete, recorded for only 480 index children[11], and partly inaccurate since the staff at the centres had to learn to take these measurements accurately. The margin of errors will therefore be high so that the height results must be interpreted with caution.

Height can also be expressed as a percentage of the expected height for the age of the child (H/A) and it is usual to take 90% as a cut-off point to signal malnutrition. Height deficits must, however, be interpreted differently from weight deficits. Height retardation can only occur over a long period of time and does not so much reflect the present condition of the child as its previous nutritional history. Weights fluctuate more easily and low weights are more indicative of the present condition of the child.

The H/A distribution of the index children at four centres are given in table 21. More than 50% of the children show signs of stunting

Table 22. HEIGHT-FOR-AGE (H/A) DISTRIBUTION OF INDEX CHILDREN

	Kisumu N=214	Bungoma	Busia N=83	Kiambu N=60	Muranga N=78	Kirinyaga	Machakos
-79%	14	-	24	37	22	-	-
80-89%	30	-	43	32	42	-	-
90% +	56	-	33	31	36	-	-
	100%		100%	100%	100%		

Table 23. NUTRITIONAL STATUS OF INDEX CHILDREN

(N=432; Kisumu, Busia, Kiambu, Muranga centres only)

1. Children with Low Height* and Low Weight for Height**	44%
2. Children with only Low Weight for Height	38%
3. Children with Low Height only	12%
4. Children with neither Low Height nor Low Weight for Height	7%
	100%

* Below 90% Height for Age
** Below 90% Weight for Height

which means that they must have suffered from malnutrition over a period of time.

When a child's height growth is reduced, its weight will keep step and also be reduced. Acutely malnourished children usually show a further weight deficit so that their weights are even less than might be expected for their (reduced) height. Waterlow (1976) has suggested that nutritional status should be judged in two steps. First by H/A which indicates nutritional history and second by the deficit in weight-for-height (W/H) i.e. the extent to which the weight of the child falls below the weight standard for its height.

Table 23 shows the distribution of W/H and H/A recorded at the centres. More than 40% of the children show a low height of less than 90% H/A together with a low weight that is less than 90% of that expected for their height. These children show a combination of long-standing and acute malnutrition. An additional 38% of the children have no retardation in height but show only a low weight for their height. It is likely that these children have developed malnutrition recently. There is also a small group of children (12%) who show height deficits but whose weight is at present in keeping with their height. This means that they have probably experienced under-nutrition in the past. Finally, 7% of the children show neither sufficient reduction in height nor in weight to be classified as malnourished. It is likely that measurement errors and mistakes in birth dates are mainly responsible for this last group.

How much weight do the children gain during their stay at the centres? To place the observations in perspective it must be noted that at one year of age the average monthly weight gain is 300 grams which

Table 24. WEIGHT GAINS OF INDEX CHILDREN

	Kisumu N=618	Bungoma N=203	Busia N=148	Kiambu N=64	Muranga N=86	Kirinyaga N=63	Machakos N=132
Weight loss	1	34	20	39	12	10	23
Gain, 0-330 gm	53	24	13	6	49	22	11
Gain, 331-660 gm	41	19	19	27	21	30	17
Gain, 661-1000 gm	4	13	20	17	13	16	21
Gain, 1.0 kg+	1	10	28	11	5	22	28
	100%	100%	100%	100%	100%	100%	100%

drops to about 150 grams at the age of five. It should also be mentioned that many marasmic children do not show quick improvement but first have to get accustomed to the diet at the centre. Kwashiorkor patients will start by losing oedema and therefore loose weight before they start to gain. Weight gains between 500 and 1000 grams over a 3 week period are generally considered as quite satisfactory; a weight gain of 1.5 kg. is very high and exceptional. A gain of over 1.5 kg. as well as a loss of more than 1.0 kg. should be regarded with suspicion. In both cases measurement errors would be suspected.

The incidence of such 'suspicious' measurements differs from centre to centre but generally falls between 10 and 20% which is not exceptional but shows that the accuracy with which weight, height and age are recorded can still be improved. Two centres have very low rates of 'suspicious' gains which is in itself suspect: Kiambu, 3% (2 cases) but particularly Kisumu, 0%.

In the 1976 report the weights measured at Kisumu FLTC had to be discarded as unreliable because the weights of the children at admission were extremely low and the reported weight gains extremely high. For this year, the weights of the children as recorded at admission are not noticeably different from those at the other centres (table 21). However, Kisumu reports only 1% cases with weight loss by the end of the course while at the other centres this is at least 10%. This suggests that weights are still not measured accurately at discharge but are placed at a modest increase of between 0-660 grams. At Kisumu FLTC 94% of the index children have a weight gain in this range while at the other centres this averages only 41%. For this reason we regret that we are not able to accept the reported weight gains at Kisumu and consequently it is not possible to say anything about the progress of the children at this centre[12].

Table 25. AGE DISTRIBUTION OF SIBLINGS AND INDEX CHILDREN

	Index Children N=1483	Siblings N=890
-12 months	19	29
13-24 months	36	16
25-36 months	22	12
37-60 months	16	23
60+ months	7	20
	100%	100%

Table 26. WEIGHT-FOR-AGE (W/A) DISTRIBUTION OF SIBLINGS AND INDEX CHILDREN*

	Index Children N=1364	Siblings N=648	National estimate**
-59%	34	17	1
60-79%	50	41	32
80-89%	10	20	33
90% +	6	22	34
	100%	100%	100%

*Children older than 60 months are not included in this table and are also omitted from tables 27 and 28.

**CBS, 1977b

At the other centres 10-20% of the children gain between 660-1000 grams which means that 60% of the children gain between 0-1 kg. It must be noted that in Bungoma and Kiambu, after a three week stay, about 35% of the children show a weight loss, which is a cause for concern and requires further investigation.

SIBLINGS

At the centres siblings are admitted as a matter of course. 60% of the index children are between 1 and 3 years of age; of the siblings 80% are 60 months or younger, and 20% are older than 5 years (table 25).

Weights and heights of the sibling are also recorded. From tables 26 and 27 it is evident that the siblings are also a malnourished group, something which we have already noted in the 1976 report. Table 26 shows that 17% are below 60% W/A and therefore severely malnourished, while another 41% falls between 60-79% W/A. In all, 58% fall below the critical dividing line of 80% W/A compared with 33% in the general population.

The figures for the centres that recorded height (Kisumu, Busia, Kiambu and Muranga) indicate that in this respect the siblings are almost as far behind as the index children. Table 27 shows that the siblings are much closer to the index children than to the general population in respect of H/A, which indicates that many of them have suffered previous malnutrition. This lends support to the idea that in many families when one child suffers from malnutrition the other children do as well, at least at some period of their lives.

The weight gains of the siblings are slightly better than those of the index children (table 28) which is understandable if many of

Table 27. HEIGHT-FOR-AGE (H/A) DISTRIBUTION OF SIBLINGS AND INDEX CHILDREN*

	Index Children N=435	Siblings N=251	National estimate**
-79%	21	15	1.5
80-89%	35	33	27
90% +	44	52	71.5
	100%	100%	100%

*Kisumu, Busia, Kiambu and Muranga centres only.

**CBS, 1977b.

Table 28. WEIGHT GAINS OF SIBLINGS AND INDEX CHILDREN

	Index Children N=1314	Siblings N=619
Weight Loss	14	7
Gain, 0-330 gm	36	26
Gain, 331-660 gm	30	37
Gain, 661-1000 gm	10	18
Gain, 1.0 kg+	10	12
	100%	100%

the index children first had to regain their distorted nutritional balance. Since the siblings are better off in this report (they show less weight deficit) they are presumably able to profit more and more quickly from the regimen at the centres.

NOTES

(1) In December 1978 the eighth centre was opened in Kilifi, Coast Province, but this centre is not discussed in this report.

(2) Throughout this report centres are identified by the name of the district in which they are found, not by the name of the village in which they are situated nor by any other individual names. Only one centre, Bungoma, is situated in a district capital. The other centres are found in various towns and villages but not in the respective district capitals.

(3) The majority of women bringing the child to the centre are the mother (table 9, page 10). For that reason, all women attending the centres, including those cases where the woman is not the natural mother of the child, are referred to as 'mothers'.

(4) The previous report covers the year 1976 (NIRP, 1977)

(5) Several centres employ subordinate staff not concerned with the daily care of the attendants for example night watchmen. For that reason, the number of staff who are directly charged with the care of the attendants is also listed and later attendant-staff ratios are calculated on the basis of this latter figure.

(6) The figures in table 3 are not identical to those in the yearly report for 1978. Minor differences can easily occur because of an occasional record getting lost, incomplete information in some record forms or because of small errors in the yearly tabulation at the centres. For Kisumu, Bungoma, Kirinyaga and Machakos the differences between the present figures and those in the yearly report are indeed minor. However, for Kiambu, Busia and Muranga the discrepancies are larger than 10% and must be noted.

(7) The records for Bungoma and Kiambu were incomplete. In Bungoma the records for the 32 attendants during the month of May were missing and in Kiambu the records for the 5 attendants during December were not available. The total number of children for these two centres has been estimated on the basis of the average number of children accompanying the attendants for whom records were available.

(8) According to the records in Kiambu and Kisumu not one single mother leaves before she has finished the course. This belies experience. It would be better if in the future the actual date of arrival and departure of each woman were recorded at these centres. This remark also applies to Machakos FLTC.

(9) Since treatment and teaching at the centres are primarily aimed towards young children, the most vulnerable age group, children over 60 months are omitted from the weight and height results. This is 7% of the index children and 20% of the siblings (table 25).

(10) This is one indication of the admission problems at this centre. Not only is the number of attendants small, but a relative large number of these children do not seem to be in serious condition. This centre also has a high rate of referrals by the staff itself (table 8).

(11) It is a pity that for reasons unknown height measurements are virtually unavailable for the children admitted in Bungoma, Kirinyaga and Machakos. To improve comparisons between the cases at the different centres this should be improved in the future.

(12) There is another indication that weight gains at the Kisumu centre were not recorded carefully. At the other centres there is a relationship, not discussed in the present report, between the condition of the child at admission and its subsequent weight gain. There is no such relationship among the cases at Kisumu which indicates the random distribution of the recorded weight gains at this centre. Because the range of weight gains in Kiambu is similar to that at the other centres the weights reported from the centre are acceptable despite the very low incidence of 'suspicious' gains.

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LIST OF TABLES

APPENDIX

I

MINISTRY OF SOCIAL SERVICES
FAMILY LIFE TRAINING CENTRES
CASE RECORD FORM

Case No — Year | number | 001

This form filled by

INSTRUCTIONS

For each woman who is admitted record the following information Answers are provided with most of the questions and where this is the case the answer must be ticked in the empty box next to it

(–) When a respondent gives a clearcut answer which does not fit one of the answer categories, the answer 'other' should be ticked

(–) When on the other hand no clear cut answer is given or when a respondent refuses to answer a part of a question the answer 'unknown' should be ticked

(–) When a question has not been asked at all nothing should be written down and none of the answer boxes should be ticked

A

Centre ____ 002

date of admission ____ 003

Date of discharge ____ 004

Referred by — Name ____

Designation ____ 005

Please record the following information for the woman who is admitted

B Name ____

006	Division Location Sublocation Village Chief	
007	Distance	

Where is this address situated

in town		1
in a village		2
on the land		3
other		4
unknown		9

008

Tribe ____ 009

010

Religion	roman catholic		1
	protestant		2
	muslim		3
	other		4
	none		5
	unknown		9

011

Education (last form attended)	no education		1
	standard 1–2		2
	standard 3–4		3
	standard 5–7		4
	any education after primary		5
	unknown		9

Ask her the following questions in order

Do you have a husband?

yes		1	
no		2	0 2

If yes, fill in below

Name husband

Are you and your husband staying together?

yes, together		1
separated		2
divorced		3
husband working elsewhere		4
unknown		9

013

Does your husband have any other wives?

yes		1
no		2
unknown		9

014

Does your husband provide any support (money, food clothes) for the children?

yes		1
very little, not much		2
no		3
unknown		9

016

If no, fill in below

Are you single, separated, divorced or widowed?

single		1
separated		2
divorced		3
widowed		4
unknown		9

016

Ask all those women who are not or no longer living with a husband (i e who are single, separated, divorced or widowed)

Are you presently living with a man (a male friend)

yes		1
no		2
unknown		9

017

If yes to this last question

Does he provide support for the family?

		1
very little not much		2
no		3
unknown		9

018

(including the woman herself)
What is the total number of adults (anyone over 16 years of age) living in your household?

1	2	3	4	5	6	7	8	9	*

019

Who are they, in what relation do they stand to this woman?

1	woman herself
2	
3	
4	
5	

if more continue on the leftside of this page

What is the year of birth of this woman?

(If not known give approximate year)

What is the total number of children living in your household, including the children admitted to the centre

1	2	3	4	5	6	7	8	9	*

030

How many of these children are your own children, how many of these children did you give birth to?

1	2	3	4	5	6	7	8	9	*

031

Are you pregnant?

yes		1
no		2
unknown		9

032

What does your work consist of throughout the months?
(Ask each of the four alternatives a, b, c and d in turn and record the reply for each of them)

(a) work in the household?

yes		1
no		2
unknown		9

033

(b) work in the shamba?

yes		1
no		2
unknown		9

034

(c) casual labour?

yes		1
no		2
unknown		9

035

(d) permanent job?

yes		1
no		2
unknown		9

036

---

* If the number is greater than 9 fill in the correct number in the empty box

-1-

Do you have any land available and if yes approximately how many acres?

no land		1
1 acre or less		2
more than 1 acre		3
more than 3 acres		4
yes, but approximate size unknow		9

037

If there is any important information about this case which has not yet been recorded please describe below, together with any other remarks you wish to make

038

How many children were admitted with this woman?

1	2	3	4	5	6	7	

039

The following questions regard the children admitted with this woman. For the child which is malnourished and which requires admission to the centre detailed information is requested but for the other children less information is needed. When more than one child is malnourished this detailed information must be recorded for the most severe case. For this child weights should be recorded every week while for the other children weights should be recorded at admission and at discharge. Heights of all the children have to be measured only once, at admission.

C 1 Child requiring admission or most severe case

Name

male		1
female		2

040

Date of birth *

041 day month year

Checked from birth certificate

yes		1
no		2

042

Is the woman attending with the child the natural mother (did she give birth to the child) or does she fall in one of the other categories?

mother		1
co-wife		2
grandmother		3
other relative		4
other		5
unknown		9

043

In the case where the woman is the mother of the child

Is this her youngest child?

yes		1
no		2
unknown		9

044

* The date of birth must be recorded as precisely as possible. However when the woman is not able to tell the month of birth, as an exception, the age of the child may be recorded. The same applies to the other children

Continue for the child requiring admission or most severe case

Is the child still on the breast?

breast fedding only		1
breast feeding with additional foods		2
no longer on the breast at all		3
unknown		9

045

When the child is no longer on the breast at all
At what age did the mother completely stop breastfeeding this child?

[ ] 046

Degree of malnutrition

none		1
mild		2
moderate		3
severe		4
unknown		9

047

If malnourished,
type of malnutrition

marasmus		1
marasmic/kwashiorkor		2
kwashiorkor		3
unknown		9

048

Was the child seen by a doctor or medical assistant during the stay at the centre?

yes		1
no		2
unknown		9

049

Did the child receive any immunisations during the stay at the centre

yes		1
no		2
unknown		9

050

If yes, which ones?

polio 1 [ ] 1, 2 [ ] 2, 3 [ ] 3 — 051

DTP 1 [ ] 4, 2 [ ] 5, 3 [ ] 6 — 052

measles [ ] 7 — 053

small pox [ ] 8 — 054

TB [ ] 9 — 055

measurements		date	weight	date 066	height 067
1 at admission	056		061		
2 after 1 week	057		062	Follow – up	
3 after 2 weeks	058		063		
4 after 3 weeks	059		064		
5 at discharge	060		065		

-6-

For other children accompanying the above child record the following If there are more than 3 other children record the the three youngest of their below For he remaining older children only record name, sex and date of birth at the bottom of t e page)

2 Name | male 1 / female 2 | 068

Date of birth 069 day month year | Checked from birth certificate | yes 1 / no 2 | 070

Signs of malnutrition

yes 1 / no 2 | 071 | If yes, describe

Measurements		date	weight	date 076	height 077
1 at admission	072		074		
2 at discharge	073		075	Follow – up	

3 Name | male 1 / female 2 | 078

Date of birth 079 day month year | Checked from birth certificate | yes 1 / no 2 | 080

Signs of malnutrition

yes 1 / no 2 | 081 | If yes describe

Measurements		date	weight	date 086	height 087
1 at admission	082		084		
2 at discharge	083		085	Follow – up	

4 Name | male 1 / female 2 | 088

Date of birth 089 day month year | Checked from birth certificate | yes 1 / no 2 | 090

Signs of malnutrition

yes 1 / no 2 | 091 | If yes describe

Measurements		date	weight	date 096	height 097
1 at admission	092		094		
2 at discharge	093		095	Follow – up	

098 5 6 7