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Maternal and Infant Nutrition Reviews



LESOTHO

an International Nutrition Communication Service publication

MATERNAL AND INFANT NUTRITION REVIEWS

LESOTHO

A Guide to the Literature

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INTRODUCTION

This monograph reviews the available literature on maternal and infant nutritional status, beliefs, and practices in Lesotho. It also lists current government, USAID, international agency, and private voluntary organization nutrition-related programs and policies.

This is not an all-inclusive listing, but it should provide enough information to enable the health/nutrition planner (our primary target audience) to ascertain quickly what is known (and what needs to be studied) about this subject. The information is chronicled according to a Maternal and Infant Nutrition Review (MINR) system outlined on page iii.

The map on page v shows the extent to which various regions and specific locations have been surveyed. Page vii presents the highlights of our findings. Pages 1 to 33 contain the data categorized according to the MINR classification system with boldface titles within each category to describe specific listings.

Pages 35 to 41 contain an annotated bibliography with each entry described in terms of type of study (original data or literature review), with methodology, sample characteristics, location, where relevant, and a summary.

These reviews are limited to documents available to us in the United States working under time constraints. We hope that we will be able to obtain further information and to update the reviews.

Special thanks are extended to Robert T. Learmonth of Planning Assistance, Inc. for reviewing and commenting on this report, and to Barbara Kaim, who helped review the documents.

Ron Israel
INCS Project Manager

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MATERNAL AND INFANT NUTRITION REVIEW

CLASSIFICATION SYSTEM

1. Nutrition and Health Status

- 1.1 General
- 1.2 Maternal
- 1.3 Infants 0-6 Months
- 1.4 Infants 6-24 Months

2. Dietary Beliefs

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- 2.2 About Pregnancy
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- 2.4 About Breast Milk Substitutes (including bottle feeding)
- 2.5 About Weaning
- 2.6 About Illness and Cure

3. Dietary Practices

- 3.1 General
- 3.2 Women
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- 3.4 Health and Medicine

4. Nutrition Status Correlations

5. Nutrition and Health Policies and Programs

- 5.1 Policies
- 5.2 Programs

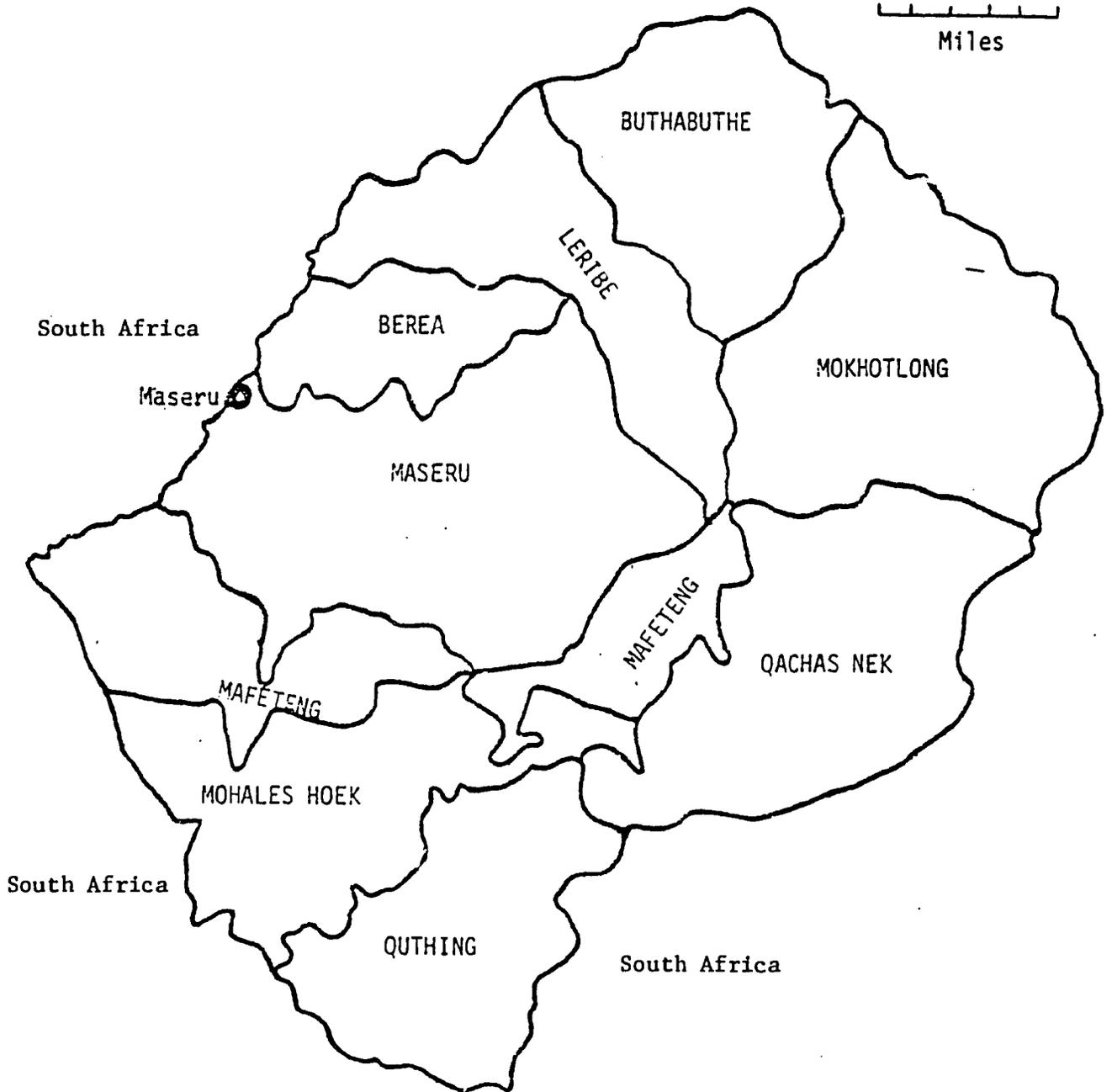
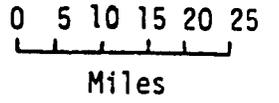
6. Commentaries

Bibliography

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LESOTHO HIGHLIGHTS

- 1. TARGET GROUP NUTRITION AND HEALTH STATUS:** The infant mortality rate is 106 per 1000 live births. There appears to have been an increase in height of about 2-3 cm and in weight of 1 kg. among 2-5 year olds between 1956 and 1976. Prevalence of underweight children is higher in the foothill mountain areas than in the urban lowland areas. 23% of male and 16.5% of female infants from 6-24 months were under 90% of the reference median height for age. The incidence of gastroenteritis is highest during the months of January, February and March.
- 2. DIETARY BELIEFS:** Adolescent girls are usually forbidden by their families to eat eggs because of the belief that eggs will cause infertility. White maize is preferred over yellow by many Basotho. Farming is believed to be essentially a women's job, except for plough-plant operations. It is the Basotho custom to give women complete rest and large quantities of food for three months after childbirth. Women are encouraged to breastfeed until becoming pregnant again, and intercourse is believed to have adverse effects on mother's milk.
- 3. DIETARY PRACTICES:** The usual diet in Lesotho is based on a staple cereal (usually maize) to which additions of vegetable or animal proteins are made. About 44% of all food consumed in Lesotho was grown on family plots, about 33% was purchased from outside the country, 13% was raised commercially and 10% was donated from abroad. About 70% of farm households are managed by women. Corn supplies 64% of the calories and 73% of the protein in the diet of the Basotho families. Moroho, a dark leafy vegetable, is one of the staples in the Basotho diet. Sorghum is used almost entirely for beer. 25% of children are breastfed to the age of two years. 76% of infants 6-24 months of age receive breast milk as the predominant form of milk; 49% of these infants receive clinic milk (corn soya milk); 24% receive market milk from South Africa; 14% receive milk from their own farm; and 12% receive milk from other farms. 3% received no milk.
- 4. NUTRITION STATUS CORRELATIONS:** The following characteristics were found to be correlates of childhood malnutrition: mountain-dweller; miner-father (father absent in the mines in South Africa); moneyless (less than US \$46/month for total household); 6-24 months of age; male child; mother illiterate; more than 4th child in the family; misspaced births (less than 2 years between a child and the following sibling); meat/legume relish usually missing from the diet; milk missing from the diet.
- 5. NUTRITION AND HEALTH POLICIES AND PROGRAMS:** The Lesotho Food and Nutrition Council coordinates the food and nutrition activities of the government, donor and voluntary agencies. The Third Five Year Plan (1980-1985) emphasizes preventive health care. The projected public capital investment in nutrition during the Third Five Year Plan will remain high at between 16.4% and 21.5% of total public capital investments. The three major types of food and nutrition activities are the feeding programs, nutrition education and development projects intended to improve the nutritional status of specific population groups (e.g. fish ponds, village gardens, etc.). Lesotho receives food aid for distribution at health centers, primary schools and preschool programs from the World Food Program, Catholic Relief Services and Save the Children.

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1. NUTRITION AND HEALTH STATUS

1.1 NUTRITION AND HEALTH STATUS, GENERAL

NATIONAL

MALNUTRITION: 7% of the total hospital and clinic population were malnourished, according to a 1968 report by the Medical Department of the Maternal Child Health Unit. (Pielmeier, 1975)

SEASONAL WEIGHT LOSS: During the summer months when food is scarce an average weight loss of 7% occurred among the sampled families in the 1956-1960 nutrition survey. (May and McLellan, 1971)

SEASONAL DEFICIENCIES: Seasonal variations in nutritional deficiencies were significant, especially for vitamins A and C. (May and McLellan, 1971)

MAJOR CAUSES OF MORTALITY: Infectious diseases (mainly pulmonary tuberculosis), circulatory diseases (mainly hypertension and ischemic heart disease), respiratory diseases (mainly acute respiratory infections), and nutritional diseases (mainly avitaminoses) were the leading causes of mortality according to total, reported inpatient deaths in government and missionary hospitals over the period 1973-1977. (Planning Assistance, 1981)

GOITER: The incidence of goiter was less than 5%, according to the 1976 Nutritional Status Survey. This is a tremendous reduction from the 1956-60 Nutrition Status Survey figure of 41% of the adult population. (Planning Assistance, 1981)

GOITER AND SALT IODIZATION: A salt iodization program was implemented by the Government of Lesotho after the 1960 survey. This program may account for part of the lowered prevalence of goiter from 15-20% in 1960 to 4% in 1976, but the criteria for goiter were less inclusive in the more recent survey which could account for part of the apparent decrease by omitting cases which would have been counted in 1960. (Government of Lesotho, 1976)

GOITER BY REGION: Goiter was found to be more prevalent in the mountainous region than in the lowlands or foothills in the 1956-60 survey. (May and McLellan, 1971)

PELLAGRA: Pellagra was considered the most common nutritional deficiency found in the country in the 1956-60 nutrition survey. (May and McLellan, 1971)

PELLAGRA: In the 1956-60 nutrition survey 15% of the population (est. 800,000) was found to be suffering from pellagra during the October to February summer season. (Anderson, 1978)

HISTORY OF PELLAGRA: Pellagra (lefu la poone, the disease of the mealies) was common in the 1930's due in great measure to an almost

1.1 NUTRITION AND HEALTH STATUS, GENERAL (Cont.)

unvarying diet of mealie meal, and in 1951 there was a significant increase in the disease. (Anderson, 1978)

MAJOR HEALTH PROBLEMS: The major health problems of Lesotho are gastroenteritis, dysentery, venereal disease, pulmonary tuberculosis, measles, typhoid, and whooping cough. There is virtually no malaria, schistosomiasis, sleeping sickness, or tetanus. (Lowther et al., 1978)

MAJOR HEALTH PROBLEMS: The Ministry of Health has identified Lesotho's major health problems as: tuberculosis, venereal diseases, gastroenteritis and typhoid fever. (Government of Lesotho, 1976)

SEASONAL GASTROENTERITIS: According to government statistics, the incidence of gastroenteritis was highest in January to March in both 1976 and 1977; the numbers of cases reported were 5414 and 6582 respectively. The lowest incidence of gastroenteritis was reported during July to September for both years; 1432 cases were reported in 1976 and 1677 cases in 1977. The rates for April to June and October to December periods were also high. (Planning Assistance, 1981)

1.2 NUTRITION AND HEALTH STATUS, MATERNAL

NATIONAL

MATERNAL ARM CIRCUMFERENCE AND TRICEPS FATFOLD: The mean arm circumference was 28.6 cm among the 848 mothers measured, and the mean triceps fatfold was approximately 15 mm. Relatively few mothers (3%-5%) were undernourished as determined by low arm circumference (< 23 cm) and low triceps fatfold (< 7.5 mm), most of these mothers were in the foothill and mountain areas. 21% of all mothers were obese as defined by a triceps fatfold greater than 25 mm. Obesity was more prevalent in urban (42%) and lowland (29%) mothers than in foothill and mountain (13%) mothers. (Government of Lesotho, 1976)

MATERNAL STATURE: The mean height of mothers in Lesotho was 156.8 cm. 11% of the 848 mothers measured had low stature (< 150 cm) and 7% had high stature (> 166 cm). There was a higher prevalence of short mothers in the urban (12%) and rural (14%) lowlands than in the foothills (8%) and mountains (8%). (Government of Lesotho, 1976)

DECLINE IN GOITER: The incidence of goiter in mothers dropped from 15% in the 1956-60 nutrition survey to 5% in the 1976 surveys, but the samples were not strictly comparable. (Anderson, 1978)

MATERNAL GOITER: According to the 1976 UCLA National Nutrition Survey, 5% of mothers were suffering from goiter. (Anderson, 1978)

MATERNAL GOITER: 4.9% of a sample of 992 mothers had visible goiter of Grade II or III by WHO criteria. Goiter was less prevalent in urban areas of the lowlands (0.8%) and most prevalent in the mountains (6.2%). (Government of Lesotho, 1976)

MATERNAL PELLAGRA: Less than 1% of a sample of 996 mothers had a pellagra-like rash on the neck or arms or other exposed parts of the body, but the peak prevalence of pellagra is at a different time of year (January to April) than when this survey was conducted. (Government of Lesotho, 1976)

1.3 NUTRITION AND HEALTH STATUS, INFANTS, 0-6 MONTHS

NATIONAL

INFANT MORTALITY RATE: The infant mortality rate is 106 per 1000 live births. (Austin et al., 1981)

INFANT MORTALITY RATE: Based upon the 1976 Lesotho Population Census, the infant mortality rate was 106.5 deaths per 1000 live births. For female infants the rate was estimated to be 97/1000 and for males the rate was 116/1000. The rate was estimated at 108/1000 for rural areas and between 98.5 and 102/1000 for urban areas. Geographically, the rate for the lowland and foothill regions was 109/1000 and the rate for the mountain and Sengu Valley areas was 105/1000. The latter figure is the most suspect of these estimates. (Planning Assistance, 1981)

INFANT MORTALITY RATES: Infant mortality rates do not appear to have improved between 1967/68 and 1976. At both points in time the rate was estimated to be 106 deaths per 1000 live births. (Planning Assistance, 1981)

INFANT MORTALITY RATE AND MAJOR CAUSES: The infant mortality rate was 106 deaths per 1000 live births in 1968. According to the Ministry of Health in 1973/74, the major causes of death were respiratory and intestinal diseases, often associated with protein-calorie malnutrition. (Pielmeier, 1975)

MALNUTRITION: Malnutrition was found to be a complication in 67-70% of deaths of infants under one year. (Pielmeier, 1975)

NORMAL GROWTH: Infants gained weight and grew according to American standards during the first six months of life. (May and McLellan, 1971)

WEIGHT FOR HEIGHT: Three of the 99 children (3.0%) from 2-5 months of age were underweight for height (< 85% of reference), and 19% of this group were overweight for height (> 120% of reference). (Government of Lesotho, 1976)

HEIGHT FOR AGE: 5% of 101 children studied between 2-5 months of age were less than 90% of reference height for age. (Government of Lesotho, 1976)

WEIGHT FOR AGE: 4% of 102 children from 2-5 months of age were under 80% of the reference weight for age. 7.5% of this group were overweight (> 120% of reference). This age group had the highest prevalence of

1.3 NUTRITION AND HEALTH STATUS, INFANTS, 0-6 MONTHS (Cont.)

overweight and the lowest prevalence of underweight. (Government of Lesotho, 1976)

SKINFOLD MEASURES: 3.9% of 60 children from 2-5 months of age had skinfold thicknesses less than 60% of reference standards and 13% of this group had skinfolds above 120% of reference. (Government of Lesotho, 1976)

OBESITY: 12.9% of children aged 2-5 months were obese, using the criterion of a triceps fatfold for age over 120% of the internationally accepted reference value. 18.8% of this age group were overweight using weight for height over 120% of the reference value used. Prevalence of obesity among other age groups under five years old was much lower. (Government of Lesotho, 1976)

MORBIDITY RATES: Government figures suggested a morbidity rate of 4.9 per 1000 infants 0-1 year of age in 1976 and 7.7 per 1000 in 1977. Gastroenteritis, measles, whooping cough, and dysenteries were the major diseases. (Planning Assistance, 1981)

URBAN

INFANT MORTALITY RATE: Based upon 1976 census data, the infant mortality rate was 102 deaths per 1000 live births in urban Maseru and 98.5 deaths per 1000 live births in other urban areas. This difference is unexplained. (Planning Assistance, 1981)

1.4 NUTRITION AND HEALTH STATUS, INFANTS, 6-24 MONTHS

NATIONAL

CHILD MORTALITY: The 1-4 year old mortality rate is 115 per 1000. (Austin et al., 1981)

CHILD MORTALITY: Preliminary analysis of 1976 census data estimated that the mortality rate up to age two years was 136 deaths per 1000 children, that is, an overall survivor rate of 864/1000. Comparable figures from 1967/68 suggested a child mortality rate of 140 per 1000. (Planning Assistance, 1981)

EARLY CHILDHOOD MORTALITY RATE AND MAJOR CAUSES: The early childhood mortality rate was 75.7 deaths per 1000 in 1968. 86% of children survive to age 2. According to the Ministry of Health in 1973/74, the major causes of death were respiratory and intestinal diseases, usually associated with protein-calorie malnutrition. (Pielmeier, 1975)

CAUSES OF DEATH: The major causes of infant and child mortality are respiratory and intestinal diseases, often associated with protein-calorie malnutrition. Childhood diseases of measles and whooping cough are also significant. (Government of Lesotho, 1976)

REGIONAL CHILD MORTALITY: Child mortality was estimated to be 18.2% among mountain families, and relatively lower in other areas: foothills, 12.5%; lowlands, 10.7%; and urban, 10.1%. (Government of Lesotho, 1976)

RATES OF MALNUTRITION: The highest incidence of clinic-reported general malnutrition appears to be in the mountains in the south of Lesotho in the district of Mafeteng (0.98%) and Qacha's Nek (1.14%). The districts of Leribe (0.88%) and Butha Buthe (0.72%) also report higher than average incidences. These figures may be a poor indicator of actual severity of malnutrition because clinic users probably do not represent the population as a whole. (Anderson, 1978)

REPORTED NUTRITIONAL DISEASE: A simple analysis of attendance at clinics in 1976 showed that 0.5% of the under-five population were diagnosed as suffering from nutritional disease (malnutrition and avitaminosis combined). This percentage is so low compared with survey findings (20%) that it seems likely substantial numbers of malnourished children are not being reported or reached by clinic services. (Anderson, 1978)

HEIGHT AND WEIGHT CHANGES: Although the results must be taken cautiously, there appears to be an increase in height of about 2-3 cm and in weight of 1 kg. among the 2-5 year olds in the 1976 survey, compared with children studied in the 1956 survey. (Government of Lesotho, 1976)

WASTING AND STUNTING: 0.7% of 645 infants from 6-24 months showed evidence of both wasting (defined as less than 85% of reference weight for height) and stunting (less than 90% of reference height for age). (Government of Lesotho, 1976)

EDEMA: Only 0.3% of 1745 children under the age of 5 years had the presence of bilateral pitting edema of the lower legs, a clinical sign of kwashiorkor. (Government of Lesotho, 1976)

WEIGHT FOR HEIGHT: 4% of 613 children 6-24 months of age were underweight (below 85% of weight for height reference). Prevalence was higher in the foothill/mountain areas (6.0%) than in the urban/lowland areas (2.3%). Among a sample of 113 special urban children with salaried parents, 2.7% had low weight for height. (Government of Lesotho, 1976)

WEIGHT FOR HEIGHT: 5.9% of 354 infants 6-24 months old in the urban/lowland regions were at or above 120% of the median reference weight for height, as were 3.5% of 328 infants in the foothills and mountains, and 6.2% of 113 infants in a special urban group with salaried parents. (Government of Lesotho, 1976)

WEIGHT FOR HEIGHT: 4.3% of male and 2.7% of female children from 6-60 months (sample size = 1485) were under 85% of the reference median weight for height. (Government of Lesotho, 1976)

WEIGHT FOR AGE BY REGION: 24.6% of 685 infants 6-24 months old were below 80% of the reference median of weight for age. The highest prevalence was among the mountain infants (28.5%) and the lowest rates

1.4 NUTRITION AND HEALTH STATUS, INFANTS, 6-24 MONTHS (Cont.)

were among the urban infants (21.9%) and among a special urban group of children with salaried parents (7%). (Government of Lesotho, 1976)

WEIGHT FOR AGE BY SEX: 24.3% of male and 21.6% of female children from 6-60 months (sample size = 1488) were under 80% of reference median of weight for age. (Government of Lesotho, 1976)

WEIGHT FOR AGE: 4.3% of male and 3.7% of female children (ages unspecified) were classified as Malnutrition Grade III (\leq 60% of standard weight for age) in the large sample (3350) of children in the 1956-60 nutrition survey; 28% of girls and 25% of boys were heavier than the standard median. (May and McLellan, 1971)

CHILDREN'S NUTRITIONAL STATUS: Only 16% of the 3350 children under age 8 sampled in the 1956-60 nutrition survey were found to be equal to or above INCAP standards for height and weight. (May and McLellan, 1971)

HEIGHT FOR AGE: 19.7% of 692 children 6-24 months old had heights for age less than 90% of reference median. The prevalence was highest in the foothill areas (25.2%) and much lower in the urban areas sampled (14%) and in the special urban group (10.5%). (Government of Lesotho, 1976)

HEIGHT FOR AGE: 23% of male and 16.5% of female infants from 6-24 months (sample size = 655) were under 90% of the reference median height for age. (Government of Lesotho, 1976)

HEIGHT FOR AGE: 22.7% of a sample population of 1706 children under 5 years of age had stunted growth (height $<$ 90% of reference for age) and were at high risk for chronic PCM. The highest prevalence was during the 12-60 month period. Prevalence was highest in the mountain areas (24.5%) and lower both in the urban sample of the lowlands (17.2%) and in the special urban group (11.3%; N = 296; children of parents with salaried positions). (Government of Lesotho, 1976)

HEIGHT FOR AGE: The 1976 UCLA National Nutrition Survey showed that 20% of children under five were chronically malnourished and below their full growth potential, including 11% of children in Maseru and 25% in the mountains. (Anderson, 1978)

RETARDED GROWTH: After the first 6 months of normal growth, infants' growth and development became more and more retarded, according to the 1956-60 survey. (May and McLellan, 1971)

ARM CIRCUMFERENCE: 4.6% of 691 infants 6-24 months old presented arm circumferences for age less than 82.5% of the reference median, as did 0.9% of infants in a special privileged urban group, 4.0% of the urban/lowland infants, and 5.1% of the infants in the foothills and mountains. (Government of Lesotho, 1976)

TRICEPS SKINFOLD: 7.6% of the children 6-23 months old had low skinfold thickness (less than 60% of reference median) and 4.3% had high skinfolds (over 120% of reference). (Government of Lesotho, 1976)

ANEMIA: The 1976 Nutritional Status Survey found anemia in 31% of the small subsample of children between the ages of 6 months and 24 months who were examined for hemoglobin counts. (Planning Assistance, 1981)

ANEMIA BY AGE: 16% of children aged 6-24 months were anemic (defined by WHO as a hemoglobin under 10 gm/100 cc). 2% of all children under 5 years suffered from severe anemia (under 8 gm/100 cc). (Government of Lesotho, 1976)

MORBIDITY RATES: Government statistics estimated the morbidity rate among 1-4 year old children at 7.1 per 1000 children in 1976 and 12.3 per 1000 in 1977. The major diseases reported in 1977 were gastroenteritis, measles, whooping cough, and dysenteries. (Planning Assistance, 1981)

RURAL

WEIGHT FOR HEIGHT: 3.3% of rural infants from 6-60 months old (sample size = 1223) were under 85% of the reference median weight for height. (Government of Lesotho, 1976)

HEIGHT FOR AGE: 24% of rural infants from 6-60 months old (sample size = 1237) were under 90% of the reference median height for age. (Government of Lesotho, 1976)

WEIGHT FOR AGE: 23% of rural infants from 6-60 months old (sample size = 1225) were under 80% of the reference median weight for age. (Government of Lesotho, 1976)

URBAN

WEIGHT FOR HEIGHT: 4.6% of urban infants from 6-60 months old (sample size = 262) were under 85% of the reference median weight for height, as were 1.1% of a special group of 272 urban children of salaried parents. (Government of Lesotho, 1976)

WEIGHT FOR AGE: 17% of urban infants from 6-60 months (sample size = 263) were under 80% of the reference median weight for age, as were 6% of a special group of 273 urban children of salaried parents. (Government of Lesotho, 1976)

HEIGHT FOR AGE: Among urban children 6-24 months old, 14% were below 90% of the reference height for age. Among privileged urban children, the rate was 10.5%. (Government of Lesotho, 1976)

HEIGHT FOR AGE: 18% of urban infants from 6-60 months old (sample size = 265) were under 90% of the reference median height for age, as were 10.9% of a special group of 275 urban children of salaried parents. (Government of Lesotho, 1976)

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2. DIETARY BELIEFS

2.1 DIETARY BELIEFS, GENERAL

NATIONAL

EGG RESTRICTION: Adolescent females are usually forbidden by their families to eat eggs because of the belief that eggs will cause infertility. (Planning Assistance, 1981)

FOOD RESTRICTIONS FOR WOMEN: The "taboo" against milk and eggs for girls seemed to be stronger than the "taboo" against beer. (May and McLellan, 1971)

FOOD RESTRICTION: The "taboo" which forbids girls to eat eggs is fast dying out. (Pielmeier, 1975)

MAIZE PREFERENCE: White maize is preferred over yellow by many Basotho. Not only does this lead to a decrease in overall maize production, but it may lead to a disdain among food aid recipients for CSM distributed through the clinics (CSM is yellow in color from yellow corn). (Planning Assistance, 1981)

FARMING: Farming is believed to be essentially a women's job, except for plough-plant operations. (Wykstra, 1978)

2.2 DIETARY BELIEFS ABOUT PREGNANCY

2.3 DIETARY BELIEFS ABOUT LACTATION

NATIONAL

REST AND FOOD: It was the Basotho custom to give women complete rest and large quantities of food for 3 months after childbirth according to the 1956-60 nutrition survey. (May and McLellan, 1971)

BREASTFEEDING AND INTERCOURSE: Women are encouraged to breastfeed until becoming pregnant again and intercourse is believed to have adverse effects on the mother's milk. (Pielmeier, 1975)

2.4 DIETARY BELIEFS ABOUT BREAST MILK SUBSTITUTES (INCLUDING BOTTLE FEEDING)

2.5 DIETARY BELIEFS ABOUT WEANING

2.6 DIETARY BELIEFS ABOUT ILLNESS AND CURE

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3. DIETARY PRACTICES

3.1 DIETARY PRACTICES, GENERAL

NATIONAL

USUAL DIET: The usual diet in Lesotho, apart from milk, is based on a staple cereal to which additions of vegetable or animal proteins are made. (Government of Lesotho, 1976)

STANDARD DIETARY PATTERN: The Basotho (the people of Lesotho) generally eat two meals each day: a breakfast two hours after sunrise, usually consisting of corn porridge, wheat bread, sour milk, and occasionally tea; and an evening meal taken an hour after dark which is the same as breakfast with the addition of a mixture of beans or greens. (May and McLellan, 1971)

"HUNGRY SEASON": Significant seasonal variations exist in the food supply. The "hungry season" in Lesotho runs from October, when the foods saved from the last harvest are used up, into February, until the new crops ripen and are harvested. Food transport to the mountain areas is often restricted in the severe winters (June and July) thus increasing the shortage by halting the input of imported foods. (Planning Assistance, 1981)

CHANGING PATTERNS: Marked deviation from traditional methods of cooking and eating are seen, particularly in the urban areas, as a result of exposure of returned migrants to practices observed and habits formed in South Africa. (Pielmeier, 1975)

FOOD SOURCES: About 44% of all food consumed in Lesotho was grown on family plots, about 33% was purchased from outside the country, 13% was raised commercially in Lesotho, and about 10% of all food consumed was donated from abroad. (Lowther et al., 1978)

FOOD SOURCES: 50% of all food came directly from farm production (self-sufficiency), 10% from foreign aid (donated), and the remaining 40% was imported from South Africa. (Austin et al., 1981)

FOOD SOURCES: The food resources available to the Basotho population come from the following sources according to the 1976 Food System Survey: direct farm consumption, 45%; locally marketed farm surplus, 14%; imported food, 31%; and food aid, 10%. (Planning Assistance, 1981)

HOME GROWN VS. COMMERCIAL PRODUCE: 45% of the nation's food in 1976 was home grown produce and only 13% was local commercial produce, while the rest was from more distant sources. (Anderson, 1978)

WOMEN'S WORKLOADS: About 70% of farm households are managed by women. They typically remain at home to direct domestic activities and supervise farming. Except for large livestock and the plough-plant operation, they perform all basic decision making and operating procedures in farming. In addition, as homemakers they are responsible for child care, gardening, gathering water and firewood, making joala, and tending small

3.1 DIETARY PRACTICES, GENERAL (Cont.)

livestock as well as maintaining family health and nutrition. It is thus likely that Basotho women are overemployed much of the year. (Wykstra, 1978)

MAIN DOMESTIC FOOD CROPS: According to the 1976 Food System Survey, maize was grown by about 80% of all households with an average annual yield of approximately four bags per family. The white varieties of maize were overwhelmingly preferred over the yellow strains even though they are more difficult to grow and yield fewer kernels per plant. Summer sorghum was produced by about 55% of families, with an average annual yield of three bags. Beans were raised by 32% of families and yielded an average of two bags annually. The mountain areas and the Orange River Valley support less production than do the foothill and lowland areas. (Planning Assistance, 1981)

MAJOR SOURCE OF CALORIES AND PROTEINS: Corn supplied 64% of the calories and 73% of the protein in the diet of Basotho families according to the 1956-60 nutrition survey. (May and McLellan, 1971)

CORN VARIETIES: Soft and bread corn have generally replaced the hard variety, probably because of the extra work involved in pounding hard corn by hand. (May and McLellan, 1971)

SORGHUM: Sorghum is made into a soft sweet or sour porridge cooked in large amounts and stored in earthen pots. The porridge is eaten for breakfast and snacks and is also thinned to be drunk as a thirst quenching drink. (Pielmeier, 1975)

VEGETABLES: Cabbage is boiled with mealie porridge. A variety of spinach, called moroho, is made into a relish. (May and McLellan, 1971)

VEGETABLE PREPARATION: Moroho, a dark leafy vegetable, is one of the staples in the Basotho diet. It is usually cooked for long periods, which wastes most of the vitamins. (Planning Assistance, 1981)

CONSUMPTION OF PROTEIN-RICH FOODS BY CHILD AND FAMILY: 90% of 122 families with one child under 5 years of age had consumed a protein-rich food at least once in the past 3 days. Peas and beans were consumed by the family in 63% of the cases; meat or poultry in 46%; fish in 32%; and eggs in 26%. (Government of Lesotho, 1976)

HIGH PROTEIN FOODS: Meat, milk and offal are eaten whenever available. Eggs are becoming available in the nutrition pilot areas and the supply is transported to some urban areas. (Pielmeier, 1975)

HIGH PROTEIN FOODS: Fish were not popular and milk and eggs were still minor staples according to 1960's reports. (May and McLellan, 1971)

MEAT: Meat was not an important item in the diet; many people reported eating meat only once a month or less. Within the money economy there appeared to be growing interest in meat. (May and McLellan, 1971)

BEER AND ALCOHOLISM: Sorghum is almost entirely used for beer, enormous quantities of which are consumed, creating a serious alcoholism problem. Often beer is mixed with still more potent beverages, such as matsnore, made of fermented sugar. (May and McLellan, 1971)

ALCOHOL CONSUMPTION: The 104.8 gram per day average per capita beer consumption (from Food Balance Sheets) probably represents a substantial alcoholism problem among limited sections of the community. (Anderson, 1978)

FAMILY FOOD DISTRIBUTION: Data from the 1976 Food System Study and other informal sources strongly suggest that the "best" food is reserved for the men, who eat before women and younger children. (Planning Assistance, 1981)

SEPARATION OF MEN: In some Lesotho villages, men eat separately. (May and McLellan, 1971)

NUTRITIONAL NEEDS AND INCOME: About one third of the Basotho population does not have enough cash and in-kind income to satisfy their basic nutritional energy requirements, according to government figures. (Planning Assistance, 1981)

AVERAGE PER CAPITA INCOME: The average per capita income in 1977 was tentatively estimated at \$170. (Austin et al., 1981)

DIETARY DEFICIENCIES: The First National Nutrition Survey (1956-60) reported that the Basotho diet was deficient in calories, protein, vitamin A, riboflavin, niacin, calcium, and iodine, but adequate in vitamin C and iron. (Anderson, 1978)

AVERAGE NUTRIENT INTAKE: The average diet contains about 2100 kilocalories (8 MJ) and 41 gm protein, according to the 1976 Household Budget Calculations, which are assumed to be the "least unreliable" data available. This diet is more than adequate in energy, barely sufficient in protein, and deficient in calcium, Vitamin A, riboflavin, and niacin. There is no data available on how much variation there is about this mean diet. (Anderson, 1978)

CALORIE INTAKE: The mean caloric intake among the 153 families sampled was 1826 calories (range 723-3844) per capita per day in the 1956-60 nutrition survey. (May and McLellan, 1971)

PROTEIN INTAKE: The mean protein intake was 59.2 grams per capita per day in the 1956-1960 nutrition survey, with only 10.7% of this amount of animal origin. (May and McLellan, 1971)

RURAL

STANDARD DIETARY PATTERN: The main daily dish for more than 90% of the population (i.e., the rural sector) is two or more cupfuls of stiff maize

3.1 DIETARY PRACTICES, GENERAL (Cont.)

porridge (papa) together with a green vegetable (moroho) relish, or sometimes a meat/legume relish. (Anderson, 1978)

DIET AND INCOME: 33% of households were estimated to have insufficient income to provide a satisfactory diet for the entire family, according to a Colorado University/National University of Lesotho Food System study. In 1976, these households received a monthly income in cash and in kind of less than R40 per month for a 4.3 member household. (Anderson, 1978)

FOOD EXPENDITURES AND INCOME: Based upon the 1976 Food System Study, the national model household was consuming R25 worth of food per month, out of a budget of R47.5 per month. (Anderson, 1978)

EDUCATION AND LOW WAGES: A low level of education, especially among males, forces the Basotho to accept low wage employment outside the country. 93.5% of absentee males and 90.4% of absentee females had less than a primary school education. (Pielmeier, 1975)

MIGRATION: Lesotho has a high rate of temporary labor migration; 60% of the active male labor force is employed in South Africa. (Pielmeier, 1975)

WOMEN'S WORK LOAD AND MIGRATION: Because of the high male labor force migration, almost all the agricultural labor is done by women, children and old men - including plowing, weeding, threshing and grinding the grain which in itself can take 2 or 3 hours a day. (May and McLellan, 1971)

MALE LABOR FORCE IN FARMING: Because of migration of the prime work-age male labor force, there is almost no permanent base of able-bodied male labor in Lesotho for agricultural production. The men available on home-leave between contracts are usually not very involved in farming. (Wykstra, 1978)

FARMING DISINCENTIVES: The fourfold increase in South African mine wages since the early 1970's has acted as a disincentive to farming and has caused a withdrawal of male labor. The female farm labor force has diminished, in part because of labor plan disincentives. In a few months of food-aid labor, a woman can earn the equivalent of the gross margin from farming a few acres for a year. (Wykstra, 1978)

AGRICULTURAL OUTPUT AND LABOR SHORTAGE: The partial and often poorly timed nature of labor inputs to farming and the failure to produce at levels once achieved are due to a labor shortage which constrains agricultural output. (Wykstra, 1978)

MOTHERS' LITERACY AND OTHER VARIABLES: Illiterate mothers were likely to have farmer husbands, live in the mountains, be over 40 years of age, have more live births, and have index children (less than 5 years old) of high birth order, not receiving market or clinic milk or food. (Government of Lesotho, 1976)

FOOD EXPENDITURES AND INCOME: 51.8% of the average rural household expenditure was for food; in the highest income strata the rate was 46.5%. In most food categories, the highest income strata out-spent the lowest by over two to one, with the meat and fish, and eggs and milk categories exceeding a four to one ratio, according to the Rural Household Consumption and Expenditure Survey of 1967-69. (FAO, 1979)

FOOD EXPENDITURES AND INCOME: In low income rural households (incomes up to 194 Rand per year), 56.2% of food expenditures was spent on cereal and pulses, 19% for meat and fish, and 6.9% for eggs and milk. In the highest strata surveyed (580-620 Rand per year) 42.6% was spent on cereals and pulses, 32.3% on meat and fish, and 12% on eggs and milk, according to the 1967-69 Consumption and Expenditure Survey. (FAO, 1979)

FATHERS' OCCUPATIONS AND OTHER VARIABLES: Miners' families were associated with a smaller household size, children of lower birth order, and absent and contributing father. Farmers' families were more common in the mountain areas, had more illiterate mothers, had children who attended clinic and received market milk less often, and had more child deaths. Families in which the father was neither a miner nor a farmer tended to have a female head of household and someone other than the mother caring for the index child. (Government of Lesotho, 1976)

URBAN

FOOD EXPENDITURES AND INCOME: Estimated food expenditures increased as a proportion of the total expenditure in inverse relationship with income. The lowest income category spent 52.6% on food while each higher income category spent proportionally less: 42.6%, 34.6%, and 27.4% respectively. (FAO, 1979)

FOOD EXPENDITURES AND INCOME: Cereals and cereal products accounted for 41.2% of the lowest income urban households' food expenditures, but only 22.5% of the highest income households'. Meat expenditures totalled 16% of the lowest income group's expenditures and 24.3% of the highest income group, according to a 1967-69 household consumption and expenditure survey. (FAO, 1979)

3.2 DIETARY PRACTICES, WOMEN

3.2.1 DIETARY PRACTICES, WOMEN, DURING PREGNANCY

NATIONAL

DIETARY DEFICIENCIES: Four pregnant women's diets were found to be deficient in calories and all nutrients studied except iron, vitamins A and C and nicotinic acid in the 1956-1960 nutrition survey. They did not gain the "normal" 20% they should have. (May and McLellan, 1971)

3.2.1 DIETARY PRACTICES, WOMEN, DURING PREGNANCY (Cont.)

DRINKING AND TRADITIONAL RESTRICTIONS: Pregnant and lactating women break the traditional "taboos" and are frequently seen drinking. (May and McLellan, 1971)

3.2.2 DIETARY PRACTICES, WOMEN, DURING LACTATION

NATIONAL

NUTRITIONAL DEFICIENCIES: Fourteen lactating women's diets were found to be deficient in all nutrients except iron in the 1956-1960 nutrition survey. (May and McLellan, 1971)

REST AND FOOD: Basotho women were reported to be given complete rest and large quantities of food (up to 4000 calories per day) during the three months after childbirth according to the 1956-1960 nutrition survey. (May and McLellan, 1971)

3.3 DIETARY PRACTICES, INFANTS, 0-24 MONTHS

3.3.1 DIETARY PRACTICES, INFANTS, 0-24 MONTHS, BREASTFEEDING

NATIONAL

PREVALENCE: Breast feeding is still widely practiced in Lesotho. 25% of children are breast fed to the age of two years. (Planning Assistance, 1981)

MAJOR SOURCE OF MILK: 76% of infants 6-24 months old received breast milk as their major source of milk. (Government of Lesotho, 1976)

RURAL

DURATION OF BREASTFEEDING: 98% of infants in the rural areas were breastfed at 6 months; 90% of infants were still breastfed at 12 months; 70% at 18 months; 50% at 22 months; and 35% at 24 months. (Government of Lesotho, 1976)

SOLE SOURCE OF MILK: 23% of rural infants 6-24 months of age were receiving breast milk as the only source of milk (although solid foods may have been introduced). (Government of Lesotho, 1976)

URBAN

SOLE SOURCE OF MILK: 12% of urban infants 6-24 months old were receiving breast milk as their sole source of milk. (Government of Lesotho, 1976)

DURATION OF BREASTFEEDING: 87% of infants in the urban area were breastfed at 6 months; 75% of infants were still being breastfed at 12 months; 50% at 19 months; and 25% at 24 months. (Government of Lesotho, 1976)

PREVALENCE DECLINE: There is some evidence of a decline in the number of breast feeding mothers in Maseru. (Planning Assistance, 1981)

3.3.2 DIETARY PRACTICES, INFANTS, 0-24 MONTHS, WEANING FOODS

NATIONAL

SOURCES OF MILK FOR INFANTS: 76% of the 658 sample infants 6-24 months of age received breast milk as the predominant form of milk. 49% of these infants received clinic milk (corn soya milk). 24% received market milk from South Africa. 14% received milk from their own farm and 12% received milk from other farms. 3% of infants received no milk, according to maternal interviews. More than one source was mentioned by most mothers. (Government of Lesotho, 1976)

BASIC SUPPLEMENTARY FOODS: 76% of 122 infants 6-24 months of age consumed maize, 53% sorghum, 47% moroho, and 36% wheat in addition to milk. (Government of Lesotho, 1976)

WEANING PROCESS: Generally infants are partially weaned after 12 months, at which time fermented thin sorghum porridge is given. (May and McLellan, 1971)

WEANING FOODS: Other foods, such as vegetables, are gradually introduced until age 2 when the child is put on adult foods. (May and McLellan, 1971)

PROTEIN-RICH FOODS: 22% of 55 urban children 6-60 months old had eaten only one of the protein-rich foods listed (i.e., meat or poultry; egg; fish; peas or beans) in the last 3 days. 74% of the children had consumed more than one of these foods. Only 4% had eaten no protein-rich food in the last three days. (Government of Lesotho, 1976)

DISTRIBUTION OF PROTEIN-RICH FOODS: Children from 6-24 months old did not consume the same kinds of foods as the family, particularly meat/poultry and peas/beans, of which they ate 24% and 19% less, respectively. The children ate 9% more eggs than the family. 22% of these children had not received any protein-rich foods (excluding milk) during the past three days, as compared with 10% of the families. (Government of Lesotho, 1976)

DIETARY DEFICIENCIES: The diets of 25 children aged 1 to 3 years were found to be deficient in all nutrients except iron and Vitamin A and provided only two-thirds of the protein requirement (all from corn) according to the 1956-1960 nutrition survey. (May and McLellan, 1971)

RURAL

SOURCES OF MILK: Breast milk is the predominant form of milk received by children up to about 22 months of age. From 1-5 years, more than 50% of the rural children obtained milk from a clinic. Other sources were farm milk or market milk from South Africa. However, 18% of mountain children

3.3.2 DIETARY PRACTICES, INFANTS, 0-24 MONTHS, WEANING FOODS (Cont.)

aged 25-60 months received no milk at all. (Government of Lesotho, 1976)

MILK FROM CLINICS: 5% of rural infants aged 6-24 months received milk from clinics only, 38% received milk from the clinics as well as other sources, and 56% received no clinic milk. (Government of Lesotho, 1976)

MARKET MILK: Market milk from South Africa was fed to 33% of lowland children 6-24 months old. (Government of Lesotho, 1976)

PREVALENCE OF MIXED FEEDING: 70% of infants 6 months old were receiving some food in addition to milk. By 9 months of age 85% were receiving some food, and by 12 months, 95%. (Government of Lesotho, 1976)

FEEDING PATTERNS: 20% of children aged 6-24 months did not receive meat, poultry, or legumes when these were consumed by the family. (Government of Lesotho, 1976)

PROTEIN-RICH FOODS: 26% of 99 children aged 6-24 months in the rural areas ate no protein-rich foods. 30% of these children had only one source of protein-rich food, and 44% had more than one type of protein-rich food during the three day period of the survey. (Government of Lesotho, 1976)

VARIETY OF DIET: 53% of 96 rural children 6-24 months old ate the greatest possible variety of foods: grains, legumes, protein foods, moroho, and milk, while 8% had only milk, and the remainder had foods from 2 to 4 of the five food groups named. (Government of Lesotho, 1976)

URBAN

SOURCES OF MILK: Breastmilk is the predominant form of milk received by children up to 15 months of age, after which market milk from South Africa and clinic milk are most frequently used. After two years of age milk was primarily obtained from places outside the family. (Government of Lesotho, 1976)

MARKET MILK: 53% of urban children 6-24 months old received market milk from South Africa. For 12% of all urban infants 6-24 months old, this was the sole source of milk. (Government of Lesotho, 1976)

PREVALENCE OF MIXED FEEDING: 90% of urban infants 6 months old were receiving some food in addition to milk. At 9 months almost all urban children (95%) received food other than milk, and by 12 months, 99%. (Government of Lesotho, 1976)

VARIABILITY OF DIET: 77% of a sample of 22 urban children 6-24 months old consumed the greatest variety of foods (grain and legume and protein and moroho and milk). (Government of Lesotho, 1976)

3.4 DIETARY PRACTICES, HEALTH AND MEDICINE

TRADITIONAL AND MODERN PRACTICES: Although they charge higher fees than white "modern" doctors, native doctors divide their fees into two parts and only demand the second part if a cure is achieved. (Pielmeier, 1975)

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4. NUTRITION STATUS CORRELATIONS

NATIONAL

THE "10 M's": The following characteristics were found to be correlates of childhood malnutrition: 1) Mountain-dweller; 2) Miner-father (father absent in the mines of South Africa); 3) Moneyless (less than R40/month or less than US \$46/month for total household); 4) 6-24 months of age (critical weaning period); 5) male child; 6) mother illiterate; 7) More than 4th child in the family; 8) Mis-spaced births (less than 2 years between a child and the following sibling); 9) Meat/legume relish usually missing from diet; and 10) milk missing from diet. (Anderson, 1978)

CORRELATES OF CHILD MALNUTRITION: Ten correlates of child malnutrition (the "10 M's") have been identified, based on National Surveys and clinic returns. Except perhaps for missing foods (e.g. meat/legume relishes, milk), no single factor was highly correlated. However, if more than 5 of the factors were present in one child's life, it was highly likely that the child was suffering some degree of malnutrition or was at high risk. (Anderson, 1978)

PCM AND CLINIC MILK: Stunting and wasting in children 6 to 24 months of age were greater (4% and 5% respectively) if they did not receive clinic milk, compared with those who did, but these differences were not significant at the 0.05 level. (Government of Lesotho, 1976)

PCM AND LATE WEANING: The late introduction of weaning foods to rural children appears to be related to the higher prevalence of PCM after 6 months of age. (Government of Lesotho, 1976)

MALNUTRITION RATES AND SEASON: 9% of the total cases at 15 clinics were due to malnutrition in the summer month of February; while in August, only 5% of presenting illnesses were classified as malnutrition. (Pielmeier, 1975)

STUNTING AND ARM WASTING AND FATHERS' STATUS: 20.6% and 30.7% of children age 6-24 months whose fathers were absent or dead, respectively, were stunted, while a lower rate of stunting (17.4%) was found in children whose father was present ($p=.03$). Similar significant differences were also found for arm wasting ($p=.02$). (Government of Lesotho, 1976)

RURAL

WASTING AND STUNTING AND HOUSEHOLD SIZE: Among 577 children age 6-24 months, the prevalence of body wasting (below 90% of the standard weight for height) was significantly greater ($p=0.03$) for children from larger households than for those from smaller ones. No such difference was found for stunting (below 90% of standard height for age). (Government of Lesotho, 1976)

STUNTING AND MATERNAL STATURE: One third of children with short mothers (<150cm) were stunted (height for age less than 90% of standard), whereas 23% of children with mothers of normal height were stunted. Neverthe-

4. NUTRITION STATUS CORRELATIONS (Cont.)

less, 85% of all stunted children had mothers who were not short; only 11% of the mothers were short. (Government of Lesotho, 1976)

STUNTING AND MOTHERS' LITERACY: Of 1022 mothers, 84 (8%) could not read Sesotho. The 6-60 month old children of these 84 mothers were significantly more likely to be stunted (under 90% of standard height for age) than the children of mothers who were literate (37% and 23% respectively). (Government of Lesotho, 1976)

WASTING AND NUMBER OF LIVE BIRTHS: Significant differences ($p < .05$) were found among a sample of 573 6 to 24 month old infants according to the number of live births in a family. The greater the number of live births, the more likely the index child had body wasting (less than 90% of standard weight for height) and arm wasting (less than 85% of standard arm circumference). (Government of Lesotho, 1976)

WASTING AND BIRTH ORDER: The greater the birth order, the more likely the index child (from 6 to 24 months of age) had body and arm wasting ($p = .03$ and $p = .01$, respectively), among a sample of 563. (Government of Lesotho, 1976)

BODY WASTING AND MIGRANT WORKERS: 19.8% of children aged 6-24 months had acute PCM (body wasting) if 2 or more members of their household were working in the Republic of South Africa, compared to 12% with one or no members working in R.S.A. ($p = 0.04$). (Government of Lesotho, 1976)

WEIGHT FOR AGE AND BREAST FEEDING: The high prevalence of breast feeding in the rural areas protected the children from undernutrition up to the age of 6 months (rate of underweight for age, 4%) but not from 6-11 months (rate of underweight for age, 25.6%). (Government of Lesotho, 1976)

ANTHROPOMETRIC INDICES AND FOOD VARIETY: Rural children age 6-24 months ($n = 95$) whose consumption included fewer food groups (less than 4 groups vs. 4 groups) showed higher rate of low weight for height (21% vs. 4%) and weight for age (34% vs. 16%), while the reverse was the case with height for age (14% vs. 24%). (Government of Lesotho, 1976)

PCM AND CLINIC ATTENDANCE: Although 6% more 6 to 24 month olds who had not attended a clinic in the past month were stunted than those who did, this difference is not statistically significant. (Government of Lesotho, 1976)

ANTHROPOMETRIC MEASURES ACCORDING TO SEX OF CHILD: 6% more male than female children 6 to 24 months of age were less than 90% of the reference median weight for height ($n = 577$). This was statistically significant ($p = 0.04$). Sex differences for height for age were not statistically significant ($p = 0.12$). (Government of Lesotho, 1976)

5. HEALTH AND NUTRITION POLICIES AND PROGRAMS

5.1 HEALTH AND NUTRITION POLICIES

NATIONAL

MATERNITY LEGISLATION: The Government of Lesotho has introduced legislation on maternity and nursing benefits, including 90 days' fully paid post-natal maternity leave for mothers working in industrial, communal or government jobs; 60 minute breastfeeding allowances during work hours for the first year; nursing facilities at or near work; and special sick leave if a breast fed infant is ill. (IBFAN News, 1981)

INFANT MILK MARKETING CODE: The Government of Lesotho has drafted a strong infant milk marketing code based upon the WHO code. (IBFAN News, 1981)

THIRD FIVE YEAR HEALTH PLAN (1980/81-1984/85): Like the Second Five Year Plan, the Third Plan emphasizes a preventive health care system rather than a curative system. The objectives of the Third Plan focus on delivery of health services, including nutrition, to all persons. The Plan proposes major administrative changes in the health system in order to carry out its policy of primary care for all. Health Service Areas (HSAs) will be defined with catchment areas of 50,000 to 100,000 people. Each HSA will have a hospital and a series of clinics. Village Health Workers will be established in the villages. (Planning Assistance, 1981)

THIRD FIVE YEAR PLAN INVESTMENTS: The projected public capital investment in nutrition and food aid projects in Lesotho during the 1980/81-1984/85 period will remain high at between 16.4% and 21.5% of total public capital investments. This is higher than the 15% reported for food aid projects during the Second Plan. (Planning Assistance, 1981)

THIRD FIVE YEAR PLAN IMPLEMENTATION: The conversion of the existing health system to one stressing the delivery of primary health care services as proposed in the Third Five Year Plan will be very difficult given the constraints of lack of money and trained personnel, and organizational inertia. Many of the specific targets of the Second Plan were not achieved. (Planning Assistance, 1981)

THIRD FIVE YEAR PLAN PRIORITIES: The Third Five Year Plan calls for increased emphasis on preventive rather than curative health care. However, projected expenditures appear to do the exact opposite by increasing the percentage of public capital investment in the curative Hospital Services Program at the expense of the more preventive Public Health Service Program. (Planning Assistance, 1981)

5-YEAR DEVELOPMENT PLANS: The two previous 5-Year Development Plans (1971-1975 and 1976-1980) focused on the growth and refinement of health services. (Government of Lesotho, 1976)

NUTRITION POLICIES-SECOND PLAN: The Second Five Year Plan did not have a clearly articulated section dealing with nutrition issues, due to the

5.1 HEALTH AND NUTRITION POLICIES (Cont.)

absence of a food and nutrition institutional framework. Nutrition activities were undertaken by the Ministry of Agriculture's Nutrition Section, by the Ministry of Health, and by donor agencies. (Planning Assistance, 1981)

HEALTH PLANNING AND PRIORITIES: There is no formal process by which health planning and policy analysis in the Ministry of Health can become the basis for decisions on priorities within the MOH or on allocation of resources among nations' leaders. (Lowther et al., 1978)

REORGANIZATION OF HEALTH CARE SERVICES: The Second Five Year Plan included in the Health Section a major reorganization of the government health services. (Pielmeier, 1975)

HEALTH CARE PRIORITIES: 90% of the Ministry of Health budget went to curative services, primarily in hospitals. Fewer than 30 people were responsible for implementing the environmental health program for the whole country. (Pielmeier, 1975)

HEALTH BUDGET: For the 1976/77 fiscal year, only 8% of the Recurrent Health Budget was for public health services, and most of this amount went for hospital-based curative care. (Austin et al., 1981)

HEALTH EXPENDITURES: A total of 4 million dollars was spent per year on health resources. This was 7.2% of the total government budget and \$3.21 per capita. (Lowther et al., 1978)

HEALTH CARE EXPENDITURES: In 1973-4, the recurrent health budget of Rand 1,098,330 (1 Rand = \$1.50) represented 7.8% of the total government expenditures, and in 1974-5, the health budget represented 7.5% of the total budget. Only 8-12% of the total health budget is allotted for preventive services. (Pielmeier, 1975)

5.2 HEALTH AND NUTRITION PROGRAMS

NATIONAL

FOOD AND NUTRITION ACTIVITIES: The three major types of food and nutrition activities are the feeding programs, nutrition education, and development projects intended to improve the nutritional status of specific population groups (i.e., fish ponds, egg circles, village gardens, etc.) (Planning Assistance, 1981)

MAJOR NUTRITION EDUCATION ACTIVITIES: The Nutrition Section of the Ministry of Agriculture and the MCH/CRS preschool clinic program of the Ministry of Health are the two largest nutrition education promoters. Both groups present nutrition lectures and demonstrations. (Anderson, 1978)

LESOTHO FOOD AND NUTRITION COUNCIL (LFNC): The Prime Minister announced in May 1978 the formation of a new unit in his office, the Lesotho Food and Nutrition Council (LFNC) to coordinate over 50 ministry, donor and

voluntary agencies with activities in food and nutrition in order to optimize the nutritional status of the Basotho. The council was established with advice from Planning Assistance, Inc. under a USAID grant. (Anderson, 1978)

NUTRITION POLICY: The Lesotho Food and Nutrition Council (LFNC), with the services of its Advisory Group and Secretariat (the Food and Nutrition Coordinating Office, FNCO), will formulate nutrition policy options for Lesotho. (Anderson, 1978)

FOOD AND NUTRITION COORDINATING OFFICE (FNCO): The FNCO is the executive secretariat of the Lesotho Food and Nutrition Council, both of which started functioning in 1978. FNCO's efforts to design and implement a multisectoral food and nutrition planning methodology have succeeded in including food and nutrition considerations into the 1980-5 Third Five Year Development Plan. Formidable challenges remain in securing continued cooperation from operational units within the ministries and government officials at the policy-making level. (Learmonth, 1980)

FOOD AND NUTRITION COORDINATING OFFICE (FNCO): The Food and Nutrition Coordinating Office (FNCO) was attempting to coordinate about 30 food and nutrition projects planned within the ministries and non-government agencies in 1981. (Planning Assistance, 1981)

PERMANENT BUREAU OF NUTRITION (PBN): The Government created the Permanent Bureau of Nutrition (PBN) in the 1960s to direct and control all food and nutrition activities in the country, supported by FAO and UNICEF. To complement the PBN and act as an executive secretariat, the Applied Nutrition Programme (ANP) was also created. By the early 1970s, the PBN was inactive and the ANP was functioning as an integral part of the Ministry of Agriculture. (Learmonth, 1980)

APPLIED NUTRITION PROGRAM (ANP): The ANP was established in 1962. Its coordinating body, the Permanent Bureau of Nutrition, helped initiate programs of school feeding, poultry production and village gardens, accompanied by nutrition education. By 1974, the Permanent Bureau suffered a decline due to its lack of direct links to any policy making body in Central Government. (Anderson, 1978)

APPLIED NUTRITION PROGRAM (ANP): Nutrition education is carried out through the Applied Nutrition Program (ANP) under the Ministry of Agriculture. The ANP was launched in 1962 as a joint government, FAO, and UNICEF project. It is independent of the food distribution programs and promotes the use of local foods. (Pielmeier, 1975)

NATIONAL FOOD AND NUTRITION CONFERENCE: In 1975 the Government organized a national conference on food and nutrition to analyze the PBN experience and to re-establish a coordinating mechanism for developing a national food and nutrition program. The main recommendation was that a national council for food and nutrition be established. (Learmonth, 1980)

5.2 HEALTH AND NUTRITION PROGRAMS (Cont.)

NATIONAL NUTRITION PLANNING SEMINAR: In 1975, the Government organized a National Nutrition Planning Seminar with the assistance of Planning Assistance Inc. supported by a USAID grant. It was attended by 100 delegates from 30 or more departments and organizations. (Anderson, 1978)

MINISTRY OF AGRICULTURE: 45 nutrition and home economics extension agents function under the Ministry of Agriculture's nutrition unit. Each one works in a six mile radius speaking about nutrition, child care and handicrafts. (Lowther et al., 1978)

COURSES FOR VILLAGE MOTHERS: The Nutrition Sector of the Ministry of Agriculture offers courses to village mothers through 8 nutrition centers, village outposts and hundreds of "pitsos", using a staff of 60 specially trained personnel. (Anderson, 1978)

MINISTRY OF AGRICULTURE: In 1973, nutrition education field workers known as Home Economic Assistants (numbering 36 in May 1974) held 878 group meetings (21,166 attending); 1,201 demonstrations (14,347 attending); 1,036 family visits; 29 village level courses (1,435 attending); and 107 campaigns. They are trained at Lesotho Agricultural College and given refresher courses by MOA staff. (Pielmeier, 1975)

AUDIOVISUAL AIDS: The Agricultural Information service produces audiovisual aids for radio programs and for village nutrition presentations. (Anderson, 1978)

FARMER TRAINING CENTERS: There are 5 Farmer Training Centers sponsored by the Ministry of Agriculture, teaching nutrition to agricultural students and farmers. (Anderson, 1978)

MINISTRY OF HEALTH: Under the Ministry of Health, the Health Education Unit prepares radio programs and courses to train farmers, nurses and teachers; the Maternal Child Health Department organizes and monitors food supplements and nutrition instruction with the Catholic Relief Service; the Public Health Nurses advise on, and take part in, nutrition education at hospitals and clinics; and the Lesotho Red Cross Association offers nutrition instruction to mothers in 10 clinics. (Anderson, 1978)

NUTRITION EDUCATION: Nutrition education is provided by the Ministry of Health as part of the formal training of health personnel, and by the Ministry of Education in the curriculum of certain schools. (Government of Lesotho, 1976)

RURAL HEALTH TRAINING AND DEVELOPMENT PROJECT: As part of the Second Five Year Plan, the Ministry of Health planned to decentralize the organizational structure of primary health care and establish a rural health development project financed by USAID. The Private Health Association of Lesotho was to assist in the development of 27 regional health service areas (HSA); each area will consist of an HSA hospital, between 2 and 15 rural health clinics serving a population of 5 to 10,000 and a cadre of village health workers. (Lowther et al., 1978)

PRIVATE HEALTH ASSOCIATION OF LESOTHO: Formed in 1974, the Private Health Association of Lesotho (PHAL) serves as a coordinating body for non-governmental organizations (mostly missions) to work together and with the Ministry of Health. (Pielmeier, 1975)

SUPPLEMENTAL FOOD MANAGEMENT: The four basic feeding projects in Lesotho (the Mother and Child Health Clinics, the Primary School Feeding Program, institutional feeding, and Food for Work) are operated through the Food Management Unit (FMU) within the Prime Minister's Office, which was formed to direct and control all food aid efforts in the country. (Planning Assistance, 1981)

FOOD AID: Lesotho receives food aid for distribution at health centers and for preschool and primary children from the World Food Program, the Catholic Relief Services (CRS) and Save the Children Fund. (Government of Lesotho, 1976)

FOOD AID: The World Food Program and Catholic Relief Services (distributing PL 480 foodstuffs under contract to U.S. AID) provide an estimated \$8 million annually in donated foods to Lesotho. (Planning Assistance, 1981)

FOOD AID: 10% of Lesotho's total food consumption is from food aid. (Anderson, 1978)

FOOD AID DISTRIBUTION SYSTEM: The food aid distribution system includes donated foods available at clinics, subsidized maize meal and whole grain sold at Lesotho-Cooperative outlets, food paid to workers in the Food for Work Program, and allocations either sold at subsidized rates or given free from the Mountain Emergency Food Reserve. (Planning Assistance, 1981)

MOTHER/CHILD FOOD AND NUTRITION PROGRAM: The Mother/Child Food and Nutrition Program was scheduled to reach 70 to 80 thousand families in 1980 by distributing food rations through clinics operated by Catholic Relief Service. The feeding program provides incentives for mothers to bring their children for health checkups. (Planning Assistance, 1981)

PRESCHOOL FEEDING PROGRAMS: Supplementary rations were provided to 50,000 of the nation's 186,000 children under five, and their 38,000 mothers, on a monthly basis at 63 of Lesotho's 145 clinics and outstations, as a joint project of the Catholic Relief Service and the Ministry of Health Maternal Child Health Department. Health and nutrition lectures were presented in the clinics and weights recorded on take-home "Road to Health" charts. (Anderson, 1978)

CATHOLIC RELIEF SERVICE: The Catholic Relief Service (CRS) preschool program, begun in 1966, distributes World Food Program (WFP) milk and blended foods and PL-480 soy oil and bulgur wheat to 70 health facilities. CRS nurse educators organize health education talks and

5.2 HEALTH AND NUTRITION PROGRAMS (Cont.)

supervise the distribution of food. Weighing and growth charts are used in conjunction with the food supplementation. (Pielmeier, 1975)

NUTRITION SURVEILLANCE: At child care clinics, children are weighed and examined and their progress recorded on "Road to Good Health" charts. (Pielmeier, 1975)

EVALUATION OF PRESCHOOL FEEDING PROGRAMS: Evaluation of the CRS preschool program carried out in 1974 showed that participating children were within the "road to good health" and showed a slight but significant improvement relative to non-attenders. 1-2% of attenders were affected by obvious kwashiorkor, but this does not differ from the 1960 WHO finding of 2% frank PCM in children 2-6 years old. (Pielmeier, 1975)

SUPPLEMENTARY FOOD AND CLINIC ATTENDANCE: According to Catholic Relief Service monthly clinic reports, there is a clear correlation between clinic attendance and food supplement availability. (Austin et al., 1981)

HEALTH CLINIC WEANING FOODS: 40 to 65% of urban and rural children 1-5 years old obtained food from the clinics. (Government of Lesotho, 1976)

PRESCHOOL FEEDING PROGRAMS: Preschool child feeding programs were run entirely by voluntary organizations such as the Lesotho Red Cross, the Catholic Relief Service and the Save the Children Fund. (May and McLellan, 1971)

CLINIC COSTS PER RECIPIENT: In a study of 10 preschool clinics, the annual mean cost per recipient visit was \$3.95 with the cost of supplementary food included (range from \$2.85 in Tsakholo to \$7.10 in St. James/Montsonyane) and only \$0.34 without food (range from \$0.15 to \$0.85). The annual mean cost per recipient was \$35.37 with a range from \$6.21 at Queen Elizabeth/Maseru to \$63.90 at St. James/Montsonyane. The in-country costs are reflected in the annual cost per recipient excluding the cost of imported supplementary food which averaged \$3.06 (only 8.7% of the total costs) with a range from \$1.35 to \$7.65. Supplementary food (82%) and labor (14%) costs account for the largest portions of the overall costs. (Austin et al., 1981)

CLINIC COST EFFECTIVENESS: It was estimated that there was an average of 166 fewer cases of malnutrition in each of the 10 study clinics because of the integrated preschool intervention offered. In contrast to the baseline figure of 27.8% malnourished non-clinic preschool children in the UCLA/Lesotho National Nutrition Survey, 16.5-16.9% of the study clinic sample children were malnourished (<80% of weight for age); a 39% reduction overall and a 54% reduction in the urban area. The cost per case of malnutrition averted was \$325 with a range of \$51 at the Queen Elizabeth/Maseru clinic where food was not given out, to about \$600 at St. James/Montsonyane Clinic. There was also a clear economy of scale with the clinics with the highest volume of attendance having the lowest per case costs. (Austin et al., 1981)

CARE PROGRAMS: CARE administers Mother Child Health programs in 145 clinics throughout the country, with over 50,000 preschool children enrolled. (TAICH, 1976)

FOOD SUPPLEMENTS AND EDUCATION: CARE distributes soybean oil, powdered milk, blended foods and bulgur wheat, donated by the U.S. Government and the World Food Program, as nutritional supplements for children of mothers who attend promotional and educational schemes on nutrition, child health and the use of blended foods. (TAICH, 1976)

DRIED SKIMMED MILK: Dried skimmed milk was given to pregnant women at prenatal clinics in 1972. (Pielmeier, 1975)

VOLUNTARY AGENCY EXPENDITURES. The Ministry of Health estimated in 1973-74 that the value of cash and in-kind contributions from international and voluntary agencies was Rand 1,984,500 (1 Rand = \$1.50). (Pielmeier, 1975)

NUTRITION EDUCATION OUTREACH: About 50 agencies have used 1000 resource centers (i.e., places of contact with the public) to reach 25% of the nation with basic information on the "Three Food Groups" and how to improve one's diet. (Anderson, 1978)

LESOTHO RED CROSS: The Lesotho Red Cross offered nine full time and 16 weekly child welfare clinics in 25 centers in 1969. Nutrition education and supplementary foods in the form of powdered milk were offered to expectant and nursing mothers. (May and McLellan, 1971)

YOUNG FARMERS' CLUBS: Young farmers' clubs ("Balemi Ba Bacha") have sponsored village nutrition talks and gardening demonstrations. (Anderson, 1978)

WOMEN'S ASSOCIATIONS: The Lesotho Council of Women under the Ministry of Rural Development is composed of 5 associations, each featuring cooking and home economics activities. (Anderson, 1978)

COMMERCIAL FOOD WHOLESALERS: Two commercial wholesalers, Nutrition Corporation of Lesotho (Ipepeng) and Maluti, have proved the value of public nutrition demonstrations in boosting their sales of texturized vegetable protein foods. (Anderson, 1978)

HEALTH STATISTICS AND ADMINISTRATORS: The University of Hawaii Rural Health Development Project was begun under the Second Five Year Plan to help improve the collection of health statistics and to train health service administrators. The programs started will continue under the Third Plan. (Planning Assistance, 1981)

DISTRIBUTION OF HEALTH FACILITIES: Government and mission hospitals and clinics do not complement each other in terms of geographic distribution. Bed to population ratios grossly favor Maseru and Butha-Buthe Districts at the expense of Mhales Hoek, Mafeteng and Berea Districts. (Lowther et al., 1978)

5.2 HEALTH AND NUTRITION PROGRAMS (Cont.)

HEALTH SERVICES: Lesotho has 17 general hospitals, approximately 110 clinics and dispensaries, a mental hospital and a leprosarium. There are serious imbalances between the services available in the urban and rural areas. (Government of Lesotho, 1976)

HOSPITALS: There are 17 general hospitals in Lesotho - 9 government and 8 mission - with a total of 1356 beds (1 per 500 persons). (Pielmeier, 1975)

NUMBER AND USE OF HEALTH CENTERS: There are 63 clinics and 25 dispensaries run by voluntary agencies, and 25 Government clinics. Uneven distribution, poor support, and high patient expenditure of time and effort, monetary costs, and long waiting times result in clinics being considered a last resort and for curative treatment only. (Pielmeier, 1975)

ACCESS TO HEALTH CLINICS: 100,000 people are not within 10 km of a health care facility, according to an analysis of catchment populations of health facilities carried out by the Health Planning Unit. (Pielmeier, 1975)

CLINIC COVERAGE: CRS/Lesotho estimated that nationwide the clinic coverage of preschoolers was between 25% and 32%. Data collected from 10 clinics in the period of March 1977 to June 1978 showed an average 43% coverage of the preschoolers (at 75% attendance) in the catchment areas (range 12% to 90%). (Austin et al., 1981)

DISTANCE AND TIME FACTORS: The average patient at Qachas' Nek Government Hospital walks over 7 hours on the return trip and over 15% walk 14 hours or more. (Pielmeier, 1975)

RURAL HEALTH PROJECT: In 1979, a large U.S. AID-funded Rural Health Project began in which 1,000 Village Health Workers (VHWs) were to be trained to provide basic health care at the village level. The VHWs would act as community liaisons, doing screening and referral and helping to improve environmental conditions of the water and sanitation. Five other VHW programs were functioning in Lesotho by late 1977. (Austin et al., 1981)

VILLAGE HEALTH WORKERS: The village health worker (VHW) pilot training program was started under the Second Five Year Plan (1975/76-1979/80). Under the Third Plan, VHW coverage is to be extended to 900 to 1000 villages. The VHW's responsibility is to provide preventive and curative services and to promote better health in the villages through self-help projects such as sanitation, nutrition, family planning, and health education. VHWs are recruited at the village level, trained, and returned to their villages. They are supervised by the health service area (HSA) clinic staff. (Planning Assistance, 1981)

VILLAGE HEALTH WORKERS: More than 100 village health workers (VHWs) have been trained under three separate programs: at Scott Hospital in Morya

District, at Quthing District Hospital and at Tebellong Hospital in Qachas' Nek District. With U.S. AID assistance, the Ministry of Health plans to train one thousand VHWs over the five year course of the Rural Health Training Project. (Lowther et al., 1978)

OXFAM: A flying doctor service was organized in 1968, sponsored by Oxfam. Eleven mountain clinics are visited on a regular schedule by the Medical Officer of the Lesotho Flying Doctor Service (LFDS). (Pielmeier, 1975)

TRADITIONAL HEALERS: An estimated 1,000 or more traditional healers are believed to be practicing today. Studies done on traditional herbal remedies in Lesotho have shown that it is likely that a skilled medicine man or herbalist can achieve genuine results for many patients. They are often the only source of basic (primary) health care. (Lowther et al., 1978)

TRADITIONAL HEALTH PRACTICES: Although they charge higher fees than white "modern" doctors, native doctors divide their fees into two parts and only demand the second part if a cure is achieved. (Pielmeier, 1975)

HOUSEHOLD BUDGET AND FOOD CONSUMPTION STUDY: A household budget and food consumption study is currently underway in Lesotho. (Planning Assistance, 1981)

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6. COMMENTARIES

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MAJOR NUTRITION PROBLEMS: Lesotho's most serious nutritional problems are reducing the remaining nutritional deficiencies, reducing its degree of reliance on food aid, and coping with the possibility of the Basotho miners having to return from the Republic of South Africa and with population increases. (Planning Assistance, 1981)

PEM-SEASONAL VARIATIONS: The PEM figures from the 1976 Nutritional Status Survey should be viewed as a "best case" estimate because the survey was done in the post-harvest period when nutritional status tends to be optimum. (Planning Assistance, 1981)

CLINIC ATTENDANCE AND MALNUTRITION RATES: The fact that more adults were reported to be malnourished than children in clinic attendance reports may reflect clinic attendance characteristics rather than actual conditions. (Anderson, 1978)

RURAL HEALTH DEVELOPMENT PROJECT: There appear to be major management, budgetary and practical constraints on the implementation of the Rural Health Development Project. They include lack of planning beyond the U.S. AID project paper, lack of administrative coordination between the public and private health sectors, government manpower shortages and tight budgets. (Lowther et al., 1978)

WOMEN'S STATUS: The relatively underprivileged status of women, along with their inordinate responsibilities in agriculture, suggests that investments in female "human capital" are likely to generate returns greater than funds invested in manpower, particularly in agriculture. (Wykstra, 1978)

ECONOMIC DEPENDENCE: Dependence on South Africa includes not only employment but also import-export trade, monetary and customs agreements, external transportation and communication links, internal power supplies, commercial investments, and tourism. (Pielmeier, 1975)

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In this resource guide the author reviews the history of nutrition in Lesotho, offers a summary of available information on the incidence of nutritional disorders, reviews available data on food consumption, and presents a picture of the current status of nutrition programs in Lesotho. Policy issues and suggestions are offered and areas of missing information identified.

Austin, J.E.; Belding, T.K.; Brooks, R.; Cash, R.; Fisher, J.; Morrow, R.; Pielmeyer, N.; Pyle, D.; Wray, J.D.; and Zeitlin, M.F.

- 1981 Nutrition Intervention in Developing Countries: Study VII, Integrated Nutrition and Primary Health Care Programs. Cambridge, MA: Oelgeschlager, Gunn and Hain, Publ., Inc. Prepared by the Harvard Institute for International Development for U.S. A.I.D.

Original data.

Method: Case study design of the use of growth charts in clinics, no controls or interventions; three rounds of data collection (500 variables) from March 1977 to June 1978; a standardized costing questionnaire; calculations of costs per case of malnutrition averted compared to UCLA Nutrition Survey baseline.

Sample: Nearly 200 mother-child pairs from each of 10 clinics; cost data from the 10 clinics. For the cost effectiveness calculations, 1412 children were compared to the UCLA baseline non-clinic sample of 1693.

Location: The 10 clinics were: Queen Elizabeth Maseru, Teyateyaneng and Leribe from urban areas; Tsakholo, St. Paul Butha-Buthe, Mofokas and St. Rose Peka from the lowland rural areas; and Quthing, St. James Mokhotlong and St. James Montsonyane from the mountain areas.

This document on integrated nutrition and health care programs is the last of a series produced by the Harvard Institute for International Development which examines the major types of nutrition programs operating in developing countries. It focuses upon programs that attempt to integrate "direct" and "indirect" nutrition interventions. The purpose is to offer guidance to planners on the nature and design of nutrition interventions through a thorough review of existing efforts. The case study of 19 preschool clinics in Lesotho and Ghana is based on data gathered by Synectics Corporation, Lesotho's and Ghana's Ministries of Health, and the Harvard Institute for International Development. For the Lesotho case study, cost effectiveness was determined in light of measurable change in nutritional status defined as an increase in weight for age over 80% of the reference median.

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This volume was prepared as a joint effort of the Statistics, the Food Policy and Nutrition, and the Commodities and Trade Divisions of the FAO, and presents data from selected surveys in which household food consumption is classified by income, total expenditure, or other indicators of economic status. Surveys were included regardless of their original purpose and the methods and data were summarized. Two surveys from Lesotho are included and furnish some very general information.

Government of Lesotho

- 1976 The Kingdom of Lesotho National Nutrition Survey, September–November 1976, assisted by the U.C.L.A. Nutrition Assessments Unit in cooperation with USAID.

Original data.

Method: Multistage, cluster sampling technique; anthropometry, clinical signs and hemoglobin assessments; interviews with mothers or substitutes. Data collected during October and November.

Sample: 1745 children under 5 years and 988 of their mothers. A "Special Group" of 296 children whose families provided a reasonable degree of health and dietary care was also identified.

Location: Whole country; survey results are described according to urban and rural lowlands, foothills and mountain ecological areas.

This survey had three purposes: 1) to provide an estimate of the nutritional status of young children and their mothers, 2) to compare nutritional status among selected areas, and 3) to provide information about the relationships between nutritional status and certain characteristics of the sample population, such as socioeconomic demographic and dietary factors. Anthropometry, chemical signs and hemoglobin assessments provided the description of nutritional status and maternal interviews provided the information on household and family characteristics, child health and diet.

IBFAN News

- 1981 Lesotho - Maternity Legislation Promotes Breastfeeding; Curbs Marketing. IBFAN News, November, 1981, p.1.

The International Baby Food Action Network (IBFAN) publishes IBFAN News to monitor the progress in curbing aggressive and unethical promotional practices of the infant food industry. This issue includes information on recent actions by the Government of Lesotho.

Learmonth, R.T.

- 1980 "Food and Nutrition Planning - the Lesotho Approach," Food Nutrition, 6(2):2-6.

This article discusses the establishment of the Food and Nutrition Coordinating Office (FNCO), and describes its experience to date in applying management-by-objectives techniques in developing a national food and nutrition program. Current successes and constraints are highlighted.

Lowther, K., Meriwether, D., Bicknell, W.J., Williams, L.E. and Fairbank, A.W.

- 1978 A review of health care in Lesotho: issues, analyses and recommendations. Submitted to Southern Africa Development Analysis Program, U.S. A.I.D. by Family Health Care, Inc. and Africare under contract number AID/afr-C-1138 (control number PN-AAH-163).

This document is a review of the health sector in Lesotho, part of the larger health sector assessment of all Southern Africa countries carried out for U.S. AID's Southern Africa Development Analysis Program. The health situation and delivery system are reviewed in the larger developmental context. An analysis and recommendations are presented.

May, J.M. and McLellan, D.L.

- 1971 The Ecology of Malnutrition in Seven Countries of Southern Africa and in Portuguese Guinea, New York, Hafner Publishing Co., XI.

The authors offer an overall picture of the food resources, diets and nutritional deficiency patterns in Lesotho based upon earlier research. The major nutrition status source used was the extensive nutrition survey done during 1956-1960, based upon 3 to 7 day studies of 153 families in 18 villages representing life in the lowlands, foothills and mountains. The presentation provides a useful summary but offers only a selective portion of what is now quite old data.

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This study was prepared within the Division of Program Analysis of the Office of International Health, Department of Health, Education and Welfare, at the request and with the support of the United States Agency for International Development. It describes and analyzes health conditions and their impacts on socioeconomic development. The major goal is to provide a concise, organized and up-to-date

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introduction to the health situation. The health and nutrition information provided on Lesotho is useful but limited to a few general sources.

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- 1981 A Desk Study of Population, Health and Nutrition in Lesotho, New York, NY: Planning Assistance.

This report on the population, health and nutrition situation in Lesotho is based upon a review of data available in the United States. Descriptive data is presented, and some analysis is offered, on the current status and trends in these three areas; constraining factors; government and non-government policies, objectives and strategies; the financial and institutional base for these; and delivery performance. The report was prepared in order to help a World Bank mission prepare for a field visit. It offers some of the most recent data on the government's Third Five Year Plan.

TAICH

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This report describes the assistance programs for Lesotho of 20 U.S. organizations. The information given on each organization is based on the data supplied to TAICH by that organization itself. The Technical Assistance Information Clearing House, operated by the American Council of Voluntary Agencies for Foreign Service under contract to the U.S. Agency for International Development, functions as a Center of information on the socioeconomic development programs of U.S. non-profit organizations.

Wykstra, R.A.

- 1978 Farm Labor in Lesotho: Scarcity or Surplus?, LASA Discussion Paper No. 5, Lesotho Agricultural Sector Analysis Project, Maseru, Lesotho: Ministry of Agriculture, and Fort Collins, Colorado, USA: Economics Department, Colorado State University. Prepared with partial support of the USAID Cooperative Agreement AID/ta-CA-1.

This document makes the argument that a crucial limiting factor in Lesotho's agricultural productivity is a labor shortage. It reviews: a) aggregate labor supplies, b) the labor-income response mechanism, c) the male labor supply in agriculture, d) the female labor supply in agriculture, e) labor demand by farm function and crop, and f) the "human capital" balance sheet in agriculture.

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