

EAST AFRICANA COLLECTION.

CULTURAL BELIEFS AND PRACTICES AS THEY RELATE TO
CHILD MALNUTRITION: A CASE STUDY OF KIBERA SLUM
VILLAGE. /

BY

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DEGREE OF MASTER OF ARTS IN SOCIOLOGY IN THE
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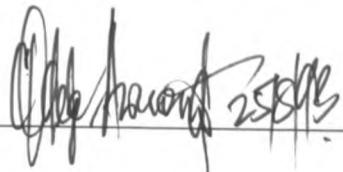
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This thesis has been submitted for examination with my approval as University Supervisor.

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ABSTRACT

The present study aimed at investigating cultural factors associated with the prevalence of malnutrition among pre-school children in Kibera slum area in Nairobi.

A random sample of 200 households with children aged 6-60 months was selected using Stratified Cluster sampling method. Questionnaires, observation and anthropometric measurements were instruments employed in collecting data. The statistical package for the social sciences (SPSS) was used for the data analysis. Chi-Square tests were conducted to establish the relationship between the dependent and independent variables.

The study revealed patterns of intra-familial distribution of food that favour the adult and elderly over young children. In most households, the children were served last or ate after the adults had eaten. These findings suggest that improvement in nutrition cannot be achieved only by increasing the supply of food available to the households. Efforts must be made to improve the utilization and distribution of that food once it enters the home.

The study also revealed that the mother's knowledge of nutrition was inadequate. This was exhibited in the weaning process of children. One of the main problems identified by the study was the introduction of inadequate supplementary and weaning foods. The types of food introduced varied but the common factor is that most of them were carbohydrates. Commercial weaning foods also appear to be gaining ground as a supplementary food item when traditional weaning foods can provide just as much nutritional value at a fraction of the cost.

Cultural beliefs with regard to childhood malnutrition remain strong among Kibera residents. In most cases the symptoms of kwashiorkor and marasmus was not associated with inadequate feeding but was seen as being caused by the transgression of sexual taboos by the parents. The treatment stemmed logically from the perceived causation.

These findings clearly point to the need to emphasise adequate supplementation at the ages of 4-6 months with continued breast-feeding, promotion of low cost locally available weaning foods at the same time discouraging the use of

commercial weaning foods as they are extremely expensive. The mother's knowledge of nutrition should also be enhanced in order to ensure sufficient nutrient intake and nutritional adequacy for pre-school children.

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CHAPTER ONE

INTRODUCTION

It is well documented that a good nutritional start in life is necessary to ensure maximum mental and physical development. It is however sad to note that malnutrition and the widespread prevalence of communicable diseases have been major health and welfare problems facing the world and especially developing countries for the last 50 years. (W.H.O. 1990).

Malnutrition is a pathological state emanating from a relative or absolute deficiency or excess of one or more essential nutrients (Jelliffe 1966). It includes undernutrition which refers to a deficiency of calories, protein and/or one or more essential nutrients and ~~o~~overnutrition which is an excess of one or more nutrients and usually of calories (Latham 1975) (McLaren 1976).

A child who receives none or very little good protein i.e. those providing essential amino acid but considerable energy-producing foods (carbohydrates and fat) arrives at a state of extreme protein deficiency called kwashiorkor. On the other hand a child who gets inadequate

amounts of carbohydrates, fats and proteins develops marasmus.

Kwashiorkor

It is a form of severe protein calorie malnutrition which usually occurs in early childhood between the ages of one to three years, after they have been taken off the breast. The main cause is a diet low in protein especially animal protein. The clinical features of kwashiorkor are:-

- (i) Oedema - swelling mainly of legs, feet and hands. The face looks puffy (moon-faced).
- (ii) The child looks miserable and lacks interest in his surroundings.
- (iii) Growth failure, wasting of muscles but some fat is retained.
- (iv) The hair becomes reddish brown, straight, sparse and easy to pull out.

Marasmus

This is another form of severe malnutrition usually occurring in the first three year of life but unlike kwashiorkor it is mainly seen in the first year of life. The commonest cause is early cessation of breast-feeding. This may be as a

result of death of mother, abandonment of the child, or actual failure of lactation. The clinical features always present in a marasmic child are:-

(i) Wasting of both muscles and subcutaneous fat. The legs and hands become very thin.

(ii) In severe cases the victims look anxious and have faces like old men.

(iii) The skin becomes thin, wrinkled and seems to be too large for the body it covers.

1:2 Effects of Malnutrition

Malnutrition affects not only the individual but the society as a whole. If there is a deficiency in any one of the specified dietary factors, the results will be manifested in well marked clinical signs characteristic of this particular deficiency - rickets, scurvy, pellagra, xerophthalmia and beriberi.

Vitamin A deficiency leading to growth failure xerophthalmia and sometimes blindness continues to be a widespread problem among children (W.H.O. 1990). An estimated 500,000 children aged six months to six years old become blind each year owing to vitamin A deficiency while 150,000 survive to join those who became blind during the

previous years (Demaeyer 1986). Xerophthalmia is not only a source of suffering for the young children affected by it, in addition, these individuals constitute a heavy social and financial burden for the community.

Iodine deficiency results in the enlargement of the thyroid gland which is known as goitre. 800 million people in the world are at risk of suffering from iodine deficiency disorders and 200 million people have actually developed goitre (UNICEF 1989).

Lack of vitamin D in children causes a disorder called rickets. One of the most obvious symptoms of rickets in infants and young children is bow legs. In females, rickets may deform the pelvis so badly that difficulties in childbirth may occur in adult life.

The interrelationship between malnutrition and infection has been studied extensively in both experimental animals and human populations. Awdeh (1976) argues that malnutrition may result in an increased susceptibility to infection and that in children suffering from protein-calorie malnutrition, the outcome of an infection tends to be more serious. This, he says, may partly

explain why the childhood infections such as measles that leave no permanent damage in a well nourished child may be fatal to a child suffering from kwashiorkor or marasmus.

1:3 PROBLEM STATEMENT

This study aimed at identifying the cultural attachments to diets, feeding and breastfeeding and how these attachments affect children's nutritional status. The areas of focus will be the prenatal and post natalmaternal diet, patterns followed in looking after infants and young children, the eating habits, distribution of food within the household, etc.

The need for knowledge of existing cultural practises and beliefs relating to malnutrition can scarcely be overemphasised. The thesis of this study will also be to find out how beliefs influence the mothers knowledge regarding the causation, symptoms, treatment and prevention of kwashiorkor and marasmus. The mother's knowledge of the food groups will also be assessed.

Understanding of and a sympathetic approach to local beliefs and customs are essential in developing satisfactory community programs.

This study is important for an understanding of the local etiology of malnutrition and for the ultimate implementation of any program aimed at improving the situation.

1:4 JUSTIFICATION OF THE STUDY

Improved nutrition as a means of reducing deaths, lessening the severity of infection and preventing various forms of retardation, blindness, anaemia, goitre and other malnutrition related problems should in itself be sufficient justification for investment in better nutrition.

The eradication of malnutrition should be a national concern because of its long term and short term effects.

Studies have shown that malnutrition³ in infancy permanently affects the minds of the children who have been afflicted [Hertzog et al., (1972), Winick (1976)]. Malnutrition interferes with a child's motivation, ability to concentrate and ability to learn and by the time he enters school he already is behind his adequately nourished classmates.

Malnutrition is an important associated cause of

the high mortality and morbidity among infants and children. Berg (1981) and Awdeh (1976) argue that people who are malnourished seem more likely to contract infectious diseases, to suffer more severe cases and to die more readily from diseases than those who are well nourished. Malnutrition is also directly related to the length of an illness and the time required for recovery from serious infections, wounds and surgery. This places great strain on the scarce medical resources in that expensive hospital beds are occupied for weeks by badly nourished children who in principle need food.

The economic potential of man is also significantly influenced by malnutrition. Overcoming deficiencies in nutrition produces stronger more energetic workers and reduces the number of days lost because of illness and increases the working life span.

The overall cost of malnutrition to the economy are often more than would be required for prevention (U.N. 1971). To the expenditure for medical care must be added the cost of rearing children who do not survive to a productive age, who having survived are less responsive to education or who become economically unproductive

adults. The combined effect is to retard economic as well as social development.

It is against this background that a cultural beliefs and practices study was carried out to identify what Kibera residents know about nutrition and find if there are practices that expose their children to kwashiorkor and marasmus. This study is an attempt to fill the gap in knowledge on cultural aspects of malnutrition in Kenya. It is hoped that the findings will be useful to nutrition workers and policy makers in their task of malnutrition control.

1.5 Objectives of the Study

The specific objectives of the study were :-

(i) to identify the cultural attachments to diets, feeding and breast-feeding and how these attachments affect children's nutritional status.

The cultural attachments were assessed through the pre-natal and post-natal maternal diet, patterns followed in looking after infants and young children and the eating habits and distribution of food within the household.

(ii) to find out how beliefs influence the mother's knowledge or its use. The factors measured were the mother's knowledge regarding the causation, symptoms, treatment and prevention of kwashiorkor and marasmus. The mother's knowledge of the food groups were also assessed. In addition, information was sought on food related taboos.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

A number of studies have been conducted on malnutrition and certain key factors in its causation have been stressed repeatedly.

2:1 Socio Economic Factors

Frohberg (1980) sees the eating habits of Kenya's urban population as being influenced by their financial position. He says the diet of the poor class becomes more or less sufficient in all major nutrients when enough money is available. In their study in Northern Haiti, Hamilton et al., (1978) saw the root cause of malnutrition as poverty which limits the amount the peasant can afford to spend on food and on fertilizer and insecticides to increase food production.

Despite the fact that malnutrition has been said to be a bedfellow of poverty, it cannot be assumed however that the families of malnourished children are necessarily poor or that all children of well off families are healthy. Socio-economic factors can be expected to have a

significant bearing on children's nutritional status but conflicting results have been reported in this regard. Whereas some studies have observed a positive relationship between childhood malnutrition and socio-economic status [Mukolwe (1977), Onyango (1980), Sululu (1984), Nzioka (1984), Nyikal (1984), Nagra and Gilani (1987), Mwangi (1988)] others have shown no such relationship. For example Seyoum et al., (1986) in their study of income and nutritional status indicators in two Ethiopian communities, none of the indicators used to express cash income or the financial resources of the household predicted nutritional status in a practical sense. Similar results were reported in other studies [Kenedy (1983), Bidinger et al., (1984), Bendley et al., (1988)]. The nutritional status appeared to be related to other than economic factors.

2:2 Food Habits

All groups have important beliefs and practices associated with food. These vary from either temporary to permanent abstinence with regard to some items to mysterious beliefs about the suitability of others. Strong religious beliefs and traditional social observances, taboos, superstitions and fear of the unknown all affect

the feeding habits of pregnant women and children in many parts of the world. In most cases these beliefs restrict the intake of protein thereby causing malnutrition.

In a study in Nepal, Graves (1984) found that despite the fact that food availability, including access to cows milk and eggs, was seemingly adequate and comparable in all families since each household raised cattle and chickens, childhood malnutrition was still a major problem. He attributed the villagers poor diet to decisions regarding food usage and distribution. There was also a local belief that children should not eat meat or eggs before all their teeth erupted and this, he argued, contributed to their dietary restrictions.

In certain parts of Nigeria, pregnant women are not allowed to eat vegetables or fruits. After delivery, They are restricted from eating soup containing meat or fish. Children must not eat eggs because they will become liars or thieves. Religious restrictions also exist. Pork must not be eaten by muslims, goats by certain christians and scaled fish by others (Collins (1967)).

Poix (1973) in her study on the causes of

malnutrition in Niger, noted that inadequate food practices was the major cause. The people have a belief that a child who has no teeth is not old enough to eat. Since teeth are often late to come, the intake of food is delayed resulting in important calorie deficiency. The food related taboos also affect the intake of protein foodstuffs. Meat is believed to give a spleen condition, fish is considered prisoner's food, while eggs will prevent a child from talking or make him a thief.

Among the Tonga, pregnant women are restricted from eating shellfish, octopus, meat, mutton, chicken and watermelons (Jansen (1982)).

2:3 Poor Nutritional Practices

Fonaroff (1975) is of the opinion that medical knowledge of how to prevent and treat protein-calorie malnutrition does not necessarily assure that P.C.M. will be reduced nor does the availability of appropriate foodstuffs assure that these foodstuffs will be used. According to him, lack of understanding about the relationship between food and disease, adherence to traditional diets lacking appropriate nutrients and biases against certain foods can lead to

malnutrition. It is pathetic to note that many innocent children die each year because their mothers lack nutrition knowledge.

Salimpour (1983) notes that despite rapid economic growth, malnutrition is still a common problem in Iran and the main cause of this is inadequate health education rather than financial constraints. He observes that bottle-feeding is a source of pride, fashionable and is introduced to the mothers free of charge in almost all maternity hospitals in Teheran by several milk companies. This led to malnutrition because of the bottle-feeding syndrome with dilution of the milk because most of the rural women cannot afford to buy the baby formula.

Another study conducted in Guatemala revealed that malnutrition was due not to economic poverty but to a poverty in knowledge of the nutritional needs of children. The important part of children's diet comprised of coffee, thin starchy gruel and broths. The supplementary foods are introduced late and in insufficient quantities. These foods, it was noted, are selected from the usual family diet without individual preparation. The selection is based on what is considered "safest" for the child. In this case black beans

and meat are considered unsuitable for infants and small children. Only the water in which these foods were cooked was believed to be satisfactory for the infant [Behar (1967)].

These studies show that the nutrition and health workers need to put in more work in order to educate the people especially women on the food groups and the importance of a balanced diet.

2:4 Uneven Distribution of Food

In many societies children are malnourished not necessarily because of lack of food but in most cases because the food is unevenly distributed at meal times. During this distribution individual physical needs are not considered and the people who suffer most are women and children.

In spite of the fact that in most cases it is the women who buy, prepare and serve food in their households, they are the ones who are discriminated upon when it comes to the distribution of food within the household. This is because the priorities that women set concerning their cash expenditure and distribution of food among family members may be dependent not only on their access to and control

of resources, but also on existing socio-cultural norms for a woman's role in society. Several authors have discussed women's sacrificing role in intra-household food distribution.

Studies in Bangladesh [Rizvi (1983) Hassan and Ahmad (1982)] describe how girls from puberty learn to become the least demanding in the family and to give priority to the needs of the male members of the household at the expense of the special needs of children and pregnant and lactating women.

The same phenomenon has been observed in India. Katone-Apte (1973) describes how women from southern India feed their husbands first then the children (boys before girls) and only then do they think of themselves. The best and most nourishing portions of the food are served to males.

Anwar and Ijaz (1984), in their study in Pakistan, clearly show the subordinate position of women with regard to intra-familial distribution of food. Both husbands and wives were asked which family members needed the most nutritious foods. Most husbands and an even greater proportion of wives responded that

husbands most needed such food. The food needs of infants were ranked much lower than those of men. Almost never did either husbands or wives mention wives and children as the ones needing the most nutritious foods.

Malethlema and Mhombolage (1974) summarise results from food composition surveys in five villages in different regions in Tanzania and state that food is made by women for men and often the better share in quality and quantity is given to men.

In a study on the nutritional status of primary school children in Machakos District, Onyango (1980), found that among the Kamba, the best food is served to the men. Women and children are usually served with whatever is left after the men have been served. 2

Uneven distribution of food is not limited to the family alone but rather to the country as a whole. Behar (1974), who sees malnutrition as being caused by social injustice, argues that the society is characterised by inequalities whereby power and resources are concentrated in the hands of a minority who do not make an effort to alleviate the plight of the poor. He goes

on to say that national economic growth and technology will not improve the living condition of the majority of the population if they are not combined with a more equitable social structure.

The above studies have clearly shown that calorie availability within the country and the household may not be a precise indicator of a child's nutritional status. It is only to the degree that children receive a portion of the calories within the family that pre-school children's energy intake will improve.

2:5 Ignorance of the Cause of Malnutrition

Every society has developed an elaborate set of ideas, attitudes and modes of behaviour in response to the threat of illness. This whole complex is passed on from one generation to another [Winefield and Peay (1976)] and the way in which people deal with illness is closely related to the idea about cause which varies from one society to another.

The mother may have quite different ideas as to what causes disease in their babies. These may be evil eye, witchcraft, breaking of taboos and so on. These ideas about the cause of a disease

dictate the care or treatment in other words treatment stems logically from perceived causation.[Nash et al., (1978) Chivilumbo (1976) Lewis (1981) Winefield and Peay (1980)].

Were et al., (1989) in their socio-cultural study of the Mijikenda in Kwale District found that both the Digo and Duruma believe that marasmus "chirwa" is caused by transgression of a number sexual taboos by the parents. Treatment therefore involves the performance of rituals to cleanse the couple so as to cure the child. The same belief applies to the Luo.

The Digo and Duruma also believe that kwashiorkor "mwadzulu" is caused by two factors: natural "heat" from the mother's womb (the baby is born with this heat) and/or the overconsumption by the child of the following foods; salt, sheep's fat, shark and sweet food. The deficiency is treated by withholding these foods and also fresh meat. Kwashiorkor is usually not referred to hospitals.

Some societies do not believe in food as being able to restore health per se. Graves (1984) in his study in Nepal found that the children's undernourished condition was never viewed by the villagers as a nutrition as a nutritional problem

that could be improved by dietary changes.

Imperato (1977) also observed the same among the people of Mali where kwashiorkor is not recognised as a protein deficiency syndrome. Since they do not know the cause, no dietary measures are instituted. Treatment for kwashiorkor and marasmus are applied externally to the body as baths or lotions. In many regions, whatever meat might be given to the child is withheld in the belief that it will worsen the condition.

In a study of malnutrition as viewed by the victim's mother, Ojofeitimi (1977) found that a majority of the mothers thought the disease was caused by the reborn. The preventive measures involved offering sacrifices to the spirits and making charms to be worn round the waist, neck, wrists, fingers and ankles. Some mothers marked the faces of their malnourished children in order to rub in traditional herbs.

It is clear from these studies that the link between food and malnutrition was not seen. This has an effect on children's nutritional status in that mothers insist on preventive and curative measures which, according to nutrition workers,

are not effective thereby aggravating the severity of malnutrition in the victim.

2:6 THEORETICAL FRAMEWORK

A number of theoretical formulations have been propounded to explain human behaviour. For this study, the Situational Approach Model will be adopted.

Situational Approach Model

This model, formulated by Thomas and Znaniecki (1974), holds that human behaviour is situationally determined. The human situation and the perception or definition of the situation is seen to be governed by:

- (i) Biological
- (ii) Psychological
- (iii) Socio-economic and
- (iv) Cultural factors.

All these singly or collectively limit and determine subsequent behaviour.

The human situation in this case will include the feeding of infants and young children, the meal

patterns, methods of eating and weaning practises whereas the perception of these situations will include the beliefs and attitudes that the people have concerning the same. According to this model therefore, the feeding of infants or the people's meal patterns are governed by biological, psychological, socio-economic and cultural factors.

The model also holds that the defining of the situation is learnt after birth from the parents, [the primary defining agency], family, playmates in school, in the community, through reading, by formal instruction by informal signs of approval and disapproval etc. By the time later childhood and adulthood have been reached, the individual will have been conditioned to internalise the ways and definitions of his society. These ways and definitions provide him with ²alternative social routes, norms, taboos, rules and sanctions thus guiding and setting limits to his behaviour.

Similar sentiments are expressed by Chivilumbo (1976) who notes that an individual, through human relations internalises the ways and definitions of his people. These ways determine the categories he uses in his perception of the familiar and strange, the healthy state and

unhealthy state, and the way in which he chooses among the alternatives before him. With regard to food therefore, the individual through socialization will internalise his society's classification of food and non food and know what is edible under certain conditions. Although people in all cultures must attend to the same biological needs such as thirst, hunger, etc., there is great variety in the cultural prescription for meeting these needs. Food regarded as delicacies in one culture may be considered inedible by another. It is for this reason that many people will starve to death in the presence of dogs, cats, slugs, snails, rats - which are potentially edible materials available to them but which many societies have not found fit to classify as human food. The categorization of food and non food may be on a religious basis as with the avoidance of pork by muslims and beef by hindus.

The Situational Approach Model sees the human situation as being composed of two factors mainly the subjective facts and the objective facts. The objective facts are factors which are common to the observer and the individual for example the physical environment, the behaviour of others, etc. The subjective facts on the

other hand are factors which exist only to the individual. They are facts as they are perceived and experienced as opposed to the objective facts which may actually exist in reality.

The subjective facts that exist for an individual may be different from reality, and may also be different from other people's subjective facts. For the individual however, the facts experienced are real, more real in fact than what may actually exist in reality or in the private world of others. These subjective facts cannot be dismissed as mere superstitions. To the individuals these facts are real and sensible. King (1976) expressed the same sentiments when he argued that the strength of a belief or attitude does not necessarily depend on the degree of correspondence with objective facts or upon its lack of contradiction with other beliefs and attitudes which the individual holds.

In relation to the study, the objective facts will include the symptoms of kwashiorkor and marasmus, their causation, treatment and prevention techniques according to medical doctors. The subjective facts will include the people's beliefs regarding the cause, treatment and prevention of kwashiorkor and marasmus.

Although the objective facts about kwashiorkor are the same among the Digo and Toro for example, their subjective facts differ in that the Digo believe that kwashiorkor is caused by natural "heat" from the mother's womb (Were et al., (1989) whereas the Toro attribute it to a new pregnancy of the mother. These beliefs and the objective facts are quite contradictory yet there was no question about the strength of the belief. To the two societies, what they is more real than what the nutritionists would want them to accept as the truth.

The Situational Approach Model sees human behaviour as adjustable and human beings as always trying to come to terms with or adjust to the situations in which they find themselves. The Model however holds that adjustment is not entirely a mechanical process in which cause and effect can be seen simply by knowing the objective condition and then observing the objective behaviour. In a situation whereby people find themselves confronted with kwashiorkor for example, the action they take in treatment or measures to prevent themselves against it do not arise logically from the known scientific aspects of the disease (objective facts) but rather it arises from what they

perceive as the treatment and prevention of the disease.

Winefield and Peay (1980) argue that treatment prescribed for an illness follows from its perceived cause and that if an illness is believed to be caused by the presence of particular micro-organisms, a drug proved to be effective against these micro-organisms is administered. They are quick to note that not all cultures perceive illness to be the result of biological causes. Some attribute illness to the supernatural. This argument is also supported by Chivilumbo (1968) and Lewis (1981) who stress the importance of regarding illness as a phenomenon which is basically subjectively defined. They go on to say that it is within the cultural framework that people internalise certain perceptions and definitions of what might constitute an illness, what conditions are recognised, the causes to be attributed to them, which people have legitimate authority to assess and define such conditions and the appropriate responses to different illnesses. Based on these perceptions and definitions, subsequent curative steps logically follow. Beliefs and attitudes towards disease in any society will be held with assurance that they are quite adequate to explain

and handle illness and though what people believe to be the cause of the disease may be illogical to the observer, it does make sense to the actors.

2:7 HYPOTHESES

The major assumption of this research is that the nutritional status of the children aged under five in Kibera is a function of cultural beliefs and practices. From this major assumption the following hypotheses were used to guide the study:

- (i) Cultural beliefs lead to inadequate nutritional knowledge among mothers. Inadequate knowledge leads to malnutrition.
- (ii) Improper eating habits are positively correlated to increased incidence of malnutrition among children.

2:8 Operational Definition of Concepts

Independent Variables

Cultural Beliefs

These are culturally defined principles or ideas accepted as true or real. In this case they include the mother's nutritional knowledge.

Early Weaning

This is a culture-specific pattern of withholding mother's milk from a child and substituting it with other nourishment. It was measured by the following:

- (i) The age of child when breast feeding stopped.
- (ii) The way breast-feeding was stopped.
- (iii) The type of weaning food.

Eating Habits

These are culturally determined practices followed when eating. They were assessed by the following measures:

- (i) The frequency of eating.
- (i) The method of eating.

Nutritional Knowledge

The following aspects of nutrition knowledge were examined: age of introducing supplementary foods into a child's diet and the type of foods introduced, diet during pregnancy, lactation and diets of young children, knowledge of the food groups, causes and treatment of kwashiorkor and marasmus. One point was given for each valid answer. A respondent's overall knowledge of nutrition was rated on a scale of 0-11 by calculating the total of all the valid responses she made. A respondent's responses were considered valid if she provided the following information:

Breast milk is supplemented with an adequate mixed diet at about 4-6 months, the diet of the mother during pregnancy and lactation should be well balanced and this also applies to the diets of children. The three food groups are proteins, carbohydrates and vitamins. "Lack of protein" and "Give more proteins" were the valid responses for the cause and treatment of kwashiorkor while the valid responses for the cause and treatment of marasmus were "Lack of food" and "Give more food".

Dependent Variable

Malnutrition

This is a pathological state resulting from relative or absolute deficiency or excess of one or more essential nutrients, this state being clinically manifested or detected only by physiological, bio-chemical or anthropometric tests.

Anthropometric measure of weight-for-age was used to assess the nutritional status. This method was used because it an easy, cheap and quick method of assessment in that it does not require highly qualified manpower to carry it out nor does it require highly sophisticated apparatus and equipment for its use.

2

CHAPTER THREE

BACKGROUND INFORMATION OF THE STUDY AREA

PHYSICAL CHARACTERISTICS AND LOCATION

Nairobi wherein the study area is located lies between the Athi Plains and the Ngong Hills on a high plateau 5,500 feet above sea level. The city, which covers 684 sq. km. is situated thirty miles south of the equator.

Nairobi has no real winter or summer. For the greater part of the year the days are frequently warm and sunny and the nights cool and pleasant. Temperatures vary from 30 C during the cool season (June, July, August) to 43 C in the hot season (December, January, February).⁷ Rains are usually heavy during March - May and little or no rain in October - December. The average annual rainfall is 43 mm.

3:2 Historical Development

Nairobi has developed from a small railway station and colonial administration centre to become one of East Africa's largest cities. In

1895 a depot for caravan trade was established at the present Ngara area and when the Uganda railway reached Nairobi in 1899, the settlement became the railways headquarters. Soon afterwards Nairobi became a communication centre and the headquarters of the provincial administration. In 1905 the colonial government established its capital in Nairobi this brought a corresponding economic and physical growth and development to the Nairobi area.

The physical area of Nairobi was 3.84 sq. km. in 1910 but it has increased steadily over the years. Following independence in 1963, the boundary of Nairobi was enlarged to embrace an area of 684 sq. km. The new boundaries include Karen, Nairobi Nation Park, Embakasi Airport area, Dandora, Kahawa, Garden Estate Ruaraka, Njiru and Githurai.

3:3 Population

As the boundaries expanded so did the population which increased from 8,000 in 1901 to 827,775 by 1979 (C.B.S. 1981). The current growth rate is estimated to be between 5-7% and the government estimates predict a figure of 2.2 million by the turn of the century. Most of the projected

increase is considered to be due to in migration from the rural areas.

3:4 Role and Function of the City

The establishment of the headquarters for the railways and the colonial administration in 1899 provided much of the impetus of Nairobi's growth. By 1970, Nairobi was essentially a commercial centre, and as a result of the existence of a concentrated market, it became a significant centre of manufacturing and service industries as well. The productive resource and the proximity of services offered in the Nairobi area have greatly stimulated further industrial activities and consequently the development of the neighbouring towns of Thika and Athi River.

In addition to the commercial development, there has been a political thrust which has been the second major factor in making Nairobi what it is. Following the railways, the seat of government was moved from Mombasa to Nairobi. Since the 1960's constitutional changes have reinforced the centralist function of Nairobi as the capital of the republic.

The city became the centre of administration in

1910. During the period most departments moved their headquarters to Nairobi. Since then the civil service has been a major factor in the city's population.

3:5 Site Description

Kibera

3:6 Location

Kibera is located in the peripheral urban area 7 km. southwest of Nairobi central business district. Kibera, which is the second largest squatter settlement in Nairobi, covers an area of 234 sq km. with a population of approximately 143,196 in 1979 (C.B.S. 1979).The location of Kibera comparatively close to central business district and industrial area as well as the relatively low rents have attracted many rural immigrants in search of work.

3:7 Physical Characteristics

Kibera is split into "upper and lower" area by the Nairobi-Kisumu railway. The upper area is dissected by south-east valley and the lower area is intersected by two steep valleys running

south-east of the Nairobi dam. Three relatively flat plateaux and ridges surround this valley. They have been densely settled during the last decades resulting in the evolution of the villages:- Laini Saba, Silanga, Katwekera, Soweto etc. The site as a whole slopes towards the Nairobi Dam to the south-east and contains a number of areas that are unsuitable for building and continue to be used for cultivation

3:8 Historical Background

At the turn of the century, Kibera was bushland used by the Maasai for cattle grazing. In 1904 the colonial authorities assigned "machina" (the original name of the present day Kibera) to the King's African Rifles as a camp for its Sudanese soldiers many of whom had joined the British army. The recruits were mainly drawn from Nubian tribes in southern Sudan. They fought for the British authorities before and after the first world war and the colonial authorities, as a reward for their services, granted each of the soldiers a piece of land in Kibera where they could settle down.

The Nubians re-named the area Kibera (which means bush in Nubian) and began to build houses mostly

from mud and wattle with corrugated iron sheet roofs.

The settlement was able to retain the Nubian-muslim character almost intact until the end of the second world war as the authorities forbade other tribes to settle there. Even today the northern part of Kibera (Makina) has a distinct Nubian character.

After the war other migrants began to come from all over Kenya. This infiltration process continued and increased especially after independence.

3:9 Land Tenure

The legal position of occupants is that they have been tenants at the will of the ³ crown (now government) and tenancy is liable to terminate by the Commissioner of Lands at any time. Since independence the situation has remained unclear as the Nubians have not been granted any land titles.

3:10 Housing

The area has swahili-type houses made of mud, wattle and corrugated iron sheets. Most of the residents are renting rooms. The dormitory-like houses are divided into 6-10 rooms. Each room is usually occupied by one family paying about Kshs. 100 - 250/= per month as rent. Each room is further sub-divided by a curtain into two spaces. The first space during the day is used as a sitting area and as children's sleeping area at night. In the second space is a bed for the parents and in one corner are cooking facilities.

3:11 Physical Infrastructure

Transportation

The main access from central business district is through Ngong Road - Kibera Drive and from central industrial area is through Mbagathi Way. The area is well served with K.B.S., Nyayo buses and Matatus thus making communication with other parts of the city relatively easy.

There is no transport facilities within the area. Residents have to walk outside the area to catch the public buses or matatus. The existing

footpaths are in very bad condition. They are dusty during the dry season and muddy and slippery during rainy season. Walking is difficult especially at night as there are no street lights in the area.

Within Kibera the provision of public infrastructure is extremely low as a result of its quasi-legal status.

Water

Water is sold by privately licensed kiosk owners who make a lot of profit. At the time of the study, a jerry can of twenty litres of water sold at 40 cents.

Drainage and Sewage Disposal

There is no organised drainage system, sewage or refuse disposal. The most common sight in the area is open trenches with stagnant waste water and scattered household waste. Human waste disposal is accomplished through pit latrines which experience a poor level of maintenance and cleanliness and which are shared by about 15-20 households. Human faeces especially of children are a common sight in the area.

3:12 Social Infrastructure

provision of schools is satisfactory. There are three primary schools nearby Kibera.

There is no public health centre for the area. For serious health problems the people use the health centres in the neighbouring estates which also offer services to the people from the study area. Few local bars and restaurants serve as entertainment places for the area. There is virtually no open space nor recreational facilities in the area.

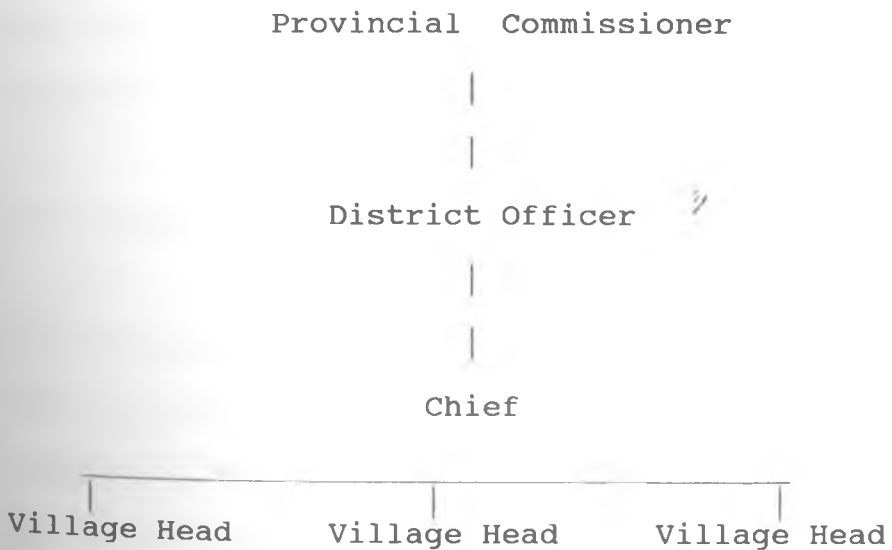
3:12 Economy and Employment

Kibera is basically a residential area. There is no employment in the formal sector. Those people in Kibera who are employed in the formal sector have to travel as far as the city centre or the industrial area depending on where they are employed. Majority of the people are employed in the informal sector. They are engaged in either shoe repairing, carpentry, tailoring, building industry, metal work, petty manufacturing of charcoal stoves, etc. Others are self employed in retailing activities like selling vegetables, fruits, charcoal, etc. Other economic activities

include letting rooms, food kiosks and bars. A number of people are also employed as houseboys or housegirls in the nearby high income areas.

3:4 Administration

Kibera consists of 12 villages originally according to the various ethnic groups, with its own council of elders and its representative (village head). There are also KANU Youth Wing Vigilante groups in each of the villages. The administrative hierarchy in Kibera is as follows:-



Sample Frame and Size

The population in this study comprise of all the households with children aged between 6 months and 5 years in Kibera slum area. (The researcher was unable to obtain a complete list of all the households with children aged between 6 - 60 months).

A random sample of 200 households was drawn to which a questionnaire was administered. A large sample would have been more appropriate but this was not possible due to the meagre time and financial resources available to the researcher.

3:16 Sampling Procedure

200 households with children aged 6-60 months were randomly selected using Stratified cluster sampling. This is a sampling method used when one is interested in specialised information from a certain category of people in this case mothers with children aged 6 - 60 months. The Stratified cluster sampling was conducted in stages. In the first stage a few mothers with

children aged 6 - 60 months were identified and interviewed. These women were used as informants to identify other women who qualify for inclusion in the sample. The second stage involved interviewing these people who in turn led to still more people who could be interviewed in the third stage and so on until the 200 respondents were interviewed. The stratified cluster sampling was made probabilistic by random sampling within each stage. Complete data was not available from 10 women and therefore only 190 households were included in the analysis.

3:17 Data Collection

The survey was carried out between the months of December 1989 and February 1990. It was conducted with the help of one research assistant who was trained to carry out anthropometry measurements and conducting the interview. 15 pre-test interviews were conducted to assess the suitability of the questionnaire and to allow problem questions to be identified. After the pre-test, the questions were modified slightly based on the pre-test experience.

Data was collected from the mothers since they are the principle providers of the primary care

that their children need during the first five years of their life. The data was collected by using a questionnaire which was designed and used to find relevant background information on the mothers, the children and to identify the cultural factors affecting the nutritional status of the children. The questionnaire included questions relating to:-

- Personal details such as age, marital status, religion, number of children, etc.
- Economic status of the household; occupation, family income, tangible wealth, etc.
- Child rearing practises; breast-feeding, weaning, meal patterns, etc.

Each mother was interviewed alone in her own home so as to minimise inhibitions by the presence of other people (especially in questions relating to household income) or influence by having heard previous answers. Each interview lasted between 35 - 55 minutes.

The diet of the mother and that of their children was noted using two methods namely:

- (i) Dietary history

(ii) 24 hour recall

3:18 Dietary History

This method was used to assess the diet of the people and to discover the usual food pattern of the respondent over a relatively long period of time. Information was obtained regarding the mother's diet in pregnancy and during lactation, feeding of infants and young children and also breast-feeding and weaning practises.

3:19 24 Hour Recall

Each mother was asked to recall the food and drinks (excluding water) consumed by the index child in the course of the previous day. This yielded information as to whether the diet is adequate or inadequate, monotonous or[?] varied.

3:20 Nutritional Anthropometry

Another method of collecting data was nutritional anthropometry. Nutritional anthropometry is the measurement of the physical dimensions and the gross composition of the body at different age levels. It is of great value in the assessment of growth failure and undernutrition.

After interviewing the women, all the children aged 6-60 months were weighed (without clothes on) using a salter scale. The children were placed in a plastic harness which was hooked to the scale. Next the scale with the child hanging from it was lifted in the air. Weights were taken to the nearest 100 grams and noted down immediately to avoid error.

The measurements got were weight-for-age as it is considered as one of the best indicators of nutritional status in young children (Gueri et al., 1980). This measurement is reliable, easy to use and carry out and does not require any special training.

The weight-for-age expresses the weight of the child as a percentage of the expected weight of a healthy child of the same age using the Havard Standard. The degree of malnutrition was expressed as the percentage deviation of the weight below the average and classified using the

Gomez classification. In the Gomez classification, 1st degree malnutrition is from 75-90 percent, second degree 60-75 percent and third degree 60 percent of the average. In this study, all the children whose weight-for-age was

below 90 percent were classified "malnourished" whereas those whose weight-for-age was above 90 percent were classified as "well nourished".

3:21 Research Limitations

The questionnaire was written in English but very few of the respondents spoke English. Translating the questions into Kiswahili and in some cases into vernacular may have slightly altered the meaning and therefore the response. Translating the questions was also time consuming.

Lack of time and funds limited the extent to which this research could be conducted. It necessitated the research be carried out in the shortest time possible and therefore could not get seasonal variations of food consumption patterns.

Income data had limitations since the questionnaires were administered to housewives many of whom did not know the earnings of their husbands. In some cases it was difficult to estimate the income since it was earned on an irregular or seasonal basis and in other cases it could have been purposefully misquoted by the

respondent.

Questions relating to deaths and their causes in the household were difficult because recalling a person's death is by no means a pleasant experience and this is more so when the death relates to one's own child.

Weighing the children proved to be a very difficult task in some households with the children running away thinking that injections were being given.

Data Analysis

Data was coded on the 80 column coding sheets and analyzed using the statistical package for the social sciences (SPSS). Complete information was not available for 10 women and therefore only 190 were included in the analysis.

The data are presented in percentages, frequencies (raw scores) tables, averages, ranges and contingency tables or cross tabulations. The variables most central to the goals of the study, generally variables included specifically in the research hypotheses were analyzed using chi-square tests to establish relationship between

the dependent and the independent variables. The chi-square (χ^2) which is the most commonly used test of significance for tables containing nominal and ordinal variables, calculated using the formula:

$$\chi^2 = \frac{(f_o' - f_e')^2}{f_e'}$$

Where f_o' = the observed frequency in each cell
 f_e' = the expected frequency calculated as

$$f_e = \frac{(c_i r_i)}{N}$$

where c_i = the frequency in a respective column marginal

r_i = the frequency in a respective row marginal

and N = the total number of valid cases.

In analyzing the data on the mothers knowledge of nutrition, the different responses were accorded scores and the respondents' knowledge was measured by her total score.

CHAPTER FOUR

FINDINGS AND DATA ANALYSIS

In the first part of this chapter the characteristics of the respondents are described. The basic data are also presented. In the second part, the independent and dependent variables included specifically in the research hypotheses are cross tabulated.

BASIC DATA

AGE

Most of the women interviewed, that is 43.1 percent were 21 to 25 years old while those 15 to 20 years and 26-30 years accounted for 24.8 percent and 22.7 percent of the sample respectively. One mother was under 15 years and none was over 40 years (Table 4.1).

Table 4.1 AGE

AGE	FREQUENCY	PERCENT
14	1	.5
15 - 20	47	24.8
21 - 25	82	43.1
26 - 30	43	22.7
31 - 35	13	6.8
36 - 40	4	2.0
TOTAL	190	100.0

Ethnic Composition

Luos and Luhyas are the predominant ethnic groups in the area constituting 32.1 and 27.9 per cent of the sample. Other ethnic groups in order of population size are the Kikuyu (13.7%) Kamba (10.5%) Nubi (7.9%) and others (Kisii, Taita, Ugandans, Rwandese, etc. (7.9%).

Marital Status

Of all the members of the households surveyed, a large proportion were single and less than 4 percent were either divorced, separated or widowed (Table 2)

Table 4.2 Marital Status

%

MARITAL STATUS	FREQUENCY	PERCENT
Married	159	83.7
Single	24	12.6
Separated	5	2.6
Divorced	1	.5
Widowed	1	.5
TOTAL	190	100.0

The table clearly shows that 83.7 percent of the households in Kibera are headed by males. This

is similar to the findings by the metropolitan household survey of 1989 which indicated that 84 percent of the households were male-headed.

Level of Education

In principal, formal education holds out the promise of equal opportunity and social equality. Table 4.3 shows the level of formal education of the women in the area under study.

Table 4.3 Level of Education

LEVEL OF EDUCATION	FREQUENCY	PERCENT
None	18	9.5
STD 1 - 4	8	4.2
STD 5 - 8	103	54.2
Secondary	61	32.1
TOTAL	190	100.0

About 58 percent of the women have had primary education while 32 percent have completed secondary school education. None of the respondents had post secondary education while 9.5 percent had no formal education at all. The low levels of education explain the low average income level (Kshs. 563) as these groups have less access to permanent employment.

Number of Surviving Children

The number of surviving children for most of the respondents fell between one and three while 12.1 percent of the respondents had five or more children. The mean number of surviving children was 2.7 which is lower than the current national average of 3.27.

The average household size was found to be 4.9 with a range of 2 - 12 persons per household. This is high as compared to Nairobi's average household size of 3.59. This finding shows that there is overcrowding in the household because 84.2 percent of the dwelling structures were one-roomed.

Cause of Death

At the time of the study, 32 children were reported to have died. Table 4.4 gives details of causes of deaths in children as reported by the mothers.

Table 4.4 Cause of Death

CAUSE OF DEATH	FREQUENCY	PERCENT
Measles	14	43.8
Diarrhoea	4	12.9
Premature Births	2	6.3
Still Born and Abortion	9	28.1
Others	3	9.4
TOTAL	32	100.0

The major causes of infant mortality were found to be measles and diarrhoeal diseases followed by maternal causes: prematurity, stillborn and spontaneous abortions. The explanation for the deaths due to diarrhoeal diseases seem to lie in the synergy between malnutrition and infection: the greater the degree of malnutrition resulting from deficiencies in the weaning diet, the greater the likelihood of acute diarrhoeal disorders proving fatal. The study revealed that certain foods and drinks are withheld in cases of measles and diarrhoea. This practise can be fatal in the presence of sustained high fever and acute diarrhoea.

Breast-feeding Practices

53.7 percent of the mothers were still breast-

feeding their children at the time of the interview. Breast-feeding schedules were mostly based on signs of hunger in the individual infant rather on preconceived ideas of the specified times at which babies should be fed. 47.9 percent of the mothers declared that they breast-fed their children on demand against 5.3 percent who would follow a time schedule and one who said she would breast-feed according to her own inclination. Most of the children were breast-fed very soon after delivery and this continued unabated for well over a year with the mean duration of breast-feeding being 16 months. This is quite encouraging considering the average length of time for breast-feeding in Nairobi is only 7 months.

Of the 88 women presently not breast-feeding their children, 66 percent had stopped breast-feeding at once while 34 percent stopped gradually.

Table 4.5 presents the distribution of mothers according to the reasons they gave for stopping breast-feeding. There were two groups of reasons: those related to the mother and those related to the infant. Reasons related to the infant were that it became too old, it had refused to

eat, it had fallen sick or it no longer wanted to breast-feed. Reasons related to the mother were: beginning of a new pregnancy, mothers illness or that the milk dried up.

Table 4.5 Why Breast-Feeding Was Stopped

CHILD-CENTRED REASONS	FREQUENCY	PERCENT
Baby Too Old	21	47.7
Baby Refused To Breast-Feed	11	25.1
Baby Ill	6	13.6
Baby Refused To Eat	6	13.6
TOTAL	44	100.0
MOTHER-CENTRED REASONS	FREQUENCY	PERCENT
Mother Got Pregnant	24	54.5
Mother Ill	13	29.6
Milk Dried Up	4	9.1
Other	3	6.8
TOTAL	44	100.0

The table shows that the most common reason for a child to be taken off the breast was a new pregnancy. The belief that the milk of the pregnant mother is bad for a child is widespread throughout the world although there is little scientific evidence to support it.

Weaning Practices

Although it appeared that Kibera children were successfully breast-fed, by the sixth month the quantity of breast milk would not be sufficient for the baby's nutritional requirements. Therefore unless the breast-feeding was supplemented at the age of 4-6 months with a mixed diet, these nutritional requirements would not be met.

By 10 months all the children's diet was being supplemented. 28.4 percent of the mothers stated that they started supplementing their babies' diets at 4-6 months, mothers started giving their babies supplementary foods as early as one month while 8 declared that they begun at 7-8 months.

The mothers were asked to name the supplementary foods that they gave their children and the responses are shown in Table 4.6. The supplementary foods given consisted chiefly of cereals/pulses.

Commercial weaning foods also appear to be gaining ground as supplementary food items. When

they can be afforded, there is no doubt that modern infant foods are convenient, easily prepared and enriched with vitamins and iron, They are however relatively expensive and far from essential, and it is possible that fresh, home-cooked foods may be more valuable nutritionally although more time-consuming in preparation. The use of commercial weaning food was also observed in Korogoshi (Maina 1988) Bombay (Ling et al, 1987) and Burma (Oo and Naing 1985).

Asked whether special food was prepared for children aged 6-18 months, the majority of the mothers (i.e. 76%) stated that they prepared special food for them while 24 percent stated that the children were served from the family pot which in most cases is generally poor in protein.

Table 4.6. Shows the different types of foods that the mothers prepared specially for the children. It is evident from the table that nearly 70 percent of the supplementary foods given were carbohydrates while protein foods accounted for only 19 percent. For the special diet, 58 percent were carbohydrates and 25.1 percent were protein-rich foods.

Table 4.6

Supplementary and Special Foods

FOOD ITEM	SUP/FOODS TIMES MENTIONED	%	SPE/FOODS TIMES MENTIONED	%
Uji	31	22	43	11
Potatoes	23	16	80	20
Bananas	22	16	74	18
Milk	15	11	31	8
Fruits	12	8	19	5
Eggs	9	6	26	6
Ugali	9	6	6	1
Vegetables	7	5	50	12
Cerelac	4	3	5	1
Soup	2	1	1	.1
Rice	2	1	20	5
Fish	1	1	4	1
Tea	1	1	2	1
Yams	1	1	-	-
Beans	1	1	31	8
Weetabix	1	1	2	1
Githeri	-	-	1	.1
Chapati	-	-	1	.1
Meat	-	-	7	2
TOTAL	141	100	403	100

Meal Patterns

Majority of the mothers (98%) said they served their children 3 meals a day (breakfast, lunch

themselves after all the other members of the household had been served. This finding is consistent with other recent studies on intra-familial distribution of food [Anwar and Ijaz (1983) Hassan and Ahmad (1982) Rizvi (1983)].

Group eating was not common and the one practised in Kibera is different from the one observed by Jelliffe (1968) where the children share both the stew and the ugali. In this study, each child had his/her own plate of stew but they all shared a plate of ugali. Therefore if there was to be any competition, it would be for the ugali only and not for both the ugali and the stew.

There was not any significant discrimination in the consumption of protein-rich foods like meat, fish, eggs and milk. Table 4.7

Table 4.7 Consumption of Protein Foods

CONSUMERS	FISH	EGGS	MILK	MEAT
Men Only	5	2	-	8
Women Only	1	1	2	1
Children Only	7	49	50	2
All Household Members	150	135	138	179
Do Not Eat	27	3	-	-

With the consumption of sufficient food to satisfy hunger, the diet may still be inadequate to meet the needs of the body. Nutritionists are convinced that an "unbalanced" diet is as harmful as underfeeding. It was with this in mind that the mothers were asked to recall all foods and drinks the children had taken 24 hours previous to the interview.

The 24 hour recall showed that, of the food eaten the previous day, ugali ranked first with 27.4 and 32.1 percent of the women stating that their children ate it for lunch and dinner respectively. The commonest food for breakfast was uji followed by tea and bread while ugali and vegetables were the main food items for lunch and dinner. Such protein rich foods as meat, beans and milk formed very minute proportions of the previous days diet.

Knowledge of Food Groups

A mother is the principal provider of the primary care that her child needs during the first five years of its life. The type of care she provides depends, to a large extent on her knowledge and understanding of some aspects of basic nutrition

and health care. Although 54.2 percent of the women stated that they had heard of food groups, only 4.7 percent women could name the three different food groups and their sources. Knowledge of food groups was mainly acquired from mother and child health clinics and in school. See Table 4.8.

Table 4.8 Source of Information

SOURCE	FREQUENCY	PERCENT
Clinic	63	33.2
School	27	14.2
Radio	10	5.3
Baraza	1	.5
Not Applicable	87	46.8
TOTAL	190	100.0

The mother's knowledge of malnutrition was assessed by asking them questions related to kwashiorkor and marasmus.

Knowledge of Kwashiorkor

Majority , that is 83 percent of the respondents had knowledge of the symptoms of kwashiorkor however, knowledge of the cause was not clear with only 56 percent of the respondents reporting that it is caused by lack of protein.

Several respondents mentioned cold food and lack of carbohydrates as the cause of kwashiorkor while 6.3 percent did not know the cause Table 4.9.

Table 4.9 Cause of Kwashiorkor

CAUSE	FREQUENCY	PERCENT
Lack of Protein	107	56.3
Cold Food	18	9.5
Does Not Know	12	6.3
Lack of Carbohydrates	36	18.9
No Response	8	4.2
Improper Hygiene	8	4.2
Failure to Follow Customs	1	.5
TOTAL	190	100.0

Treatment and prevention in most cases stemmed logically from the perceived causation. 49.5 percent of the women claimed that giving protein foods was the best treatment for kwashiorkor whereas 9.5 percent said that they took their child to hospital when kwashiorkor was suspected because they believed that hospital treatment was effective against kwashiorkor. This was not so for 2 women who claimed that traditional medicine was most effective. Table 4.10.

Table 4.10

Treatment of Kwashiorkor

TREATMENT	FREQUENCY	PERCENT
No Response	12	6.3
Give Proteins	94	49.5
Give Hot Food	15	7.9
Do Not Know	49	25.7
Modern Medicine + Vaccine	18	9.5
Traditional Medicine	2	1.1
TOTAL	190	100.0

It is well documented that young children aged 1-3 years are more susceptible to kwashiorkor than adults. There was variation in responses on the age groups more susceptible to kwashiorkor. Table 4.11.

77.3 percent of the respondents argued that children aged 0-5 years were more susceptible to kwashiorkor as compared to 61.3 percent who said that all age groups were equally susceptible. The knowledge on the age groups that are more susceptible to kwashiorkor may arise from the pattern in which it affects the people. The symptoms are more felt on a child than in adults.

Table 4.11 Susceptibility to Kwashiorkor

AGE GROUP	FREQUENCY	PERCENT
10 - 12 Months	5	2.6
1 - 3 Years	66	34.7
3 - 5 Years	76	40.0
All Age Groups	31	16.5
No Response	12	6.3
TOTAL	190	100.0

Asked whether kwashiorkor is contagious, 83.7 percent of the women stated that it is not communicable while 2.6 percent argued that it can be passed from one person to another. 7.4 percent of the women did not know whether or not it is contagious.

There is a vicious cycle between kwashiorkor and infection because kwashiorkor lowers the victim's immunity thus making him easily susceptible to other diseases. A large majority (72.1%) of the respondents were aware that kwashiorkor patients lose their immunity and hence become susceptible to other diseases. Only 11 women did not think kwashiorkor victims are easily susceptible to other diseases, while 30 said that they did not know.

Although 84.2 percent of the women knew that kwashiorkor can be prevented, their knowledge of how it is prevented was minimal (Table 4.12).

Table 4.12 Prevention of Kwashiorkor

RESPONSE	FREQUENCY	PERCENT
No Response	12	6.3
Mixed Diet	99	52.1
Proper Hygiene	12	6.3
Do Not Know	7	3.7
Traditional Medicine	1	.5
Modern Medicine + Vaccine	4	2.1
Carbohydrates + Vitamins	28	14.7
Hot Food	9	4.7
Not Applicable	18	9.5
TOTAL	190	100.0

In most cases the responses corresponded with the respondent's belief on the causation of kwashiorkor. Those who mentioned cold food argued that giving hot food was the best way to keep away kwashiorkor. Some claimed that giving carbohydrates and vitamins can prevent a child from getting kwashiorkor.

There was a general feeling that kwashiorkor is curable. Only 2 women thought that kwashiorkor

cannot be cured. When asked who treats kwashiorkor most effectively, 58.9 percent of the women claimed they took their children to hospital when they suspected kwashiorkor because they argued that modern medicine could actually cure kwashiorkor. 2.1 percent of the women claimed that traditional medicine was more effective for curing kwashiorkor, while 6.8 percent argued that both traditional and modern medicine were equally effective in this aspect.

Most mothers were of the opinion that no cultural practices can lead to kwashiorkor in children however, 8.4 percent of the mother cited adultery and failure to follow customs as practices that can expose their children to kwashiorkor.

All this information on kwashiorkor show clearly that although the people are aware of kwashiorkor, certain of its aspects like causation and prevention are not very clear to them. In most cases the connection between better food and nutritional status is unknown to them.

Knowledge of Marasmus

It was also the thesis of this study to identify

the mother's knowledge of marasmus. Symptoms of a marasmic child were given and the mothers were asked to name the disease. A large proportion of the mothers (74.2%) were not familiar with marasmus. This may be because it is not very common in the area. During the survey we came across only two children who appeared to be marasmic.

Knowledge of the cause of marasmus can lead to preventive measures to keep it at bay thereby reducing the chances of its occurrence. Mothers were asked to mention the cause of marasmus and their responses depicted in Table 4.13 below.

There was lack of clarity on the cause of marasmus. Only 14 percent of the women know the cause of marasmus. 16.9 percent claimed it is caused by adultery and failure to follow customs.

Table 4.13

Cause of Marasmus

CAUSE	FREQUENCY	PERCENT
No Response	39	20.5
Lack of Food	27	14.2
Adultery	15	7.9
Failure to Follow Customs	15	7.9
Starchy Diet	5	2.6
Do Not Know	74	38.9
Adultery + Failure to Follow Customs	2	1.1
Lack of Water	2	1.1
Others	11	5.8
TOTAL	190	100.0

The responses for the treatment of marasmus ranged from giving more food (8.9%), modern medicine (3.7%), mixed diet (5.8%), traditional medicine (13.7%), to both modern medicine and traditional medicine (1.1%). 60.5 percent of the women said they did not know how marasmus can be treated.

Asked to say who is more likely to get marasmus, 3.2 percent of the women thought that children between 0-1 year are most likely to suffer from it, 20.5 percent said it is more likely to attack 1-3 year olds. 17.9 percent of the mothers

argued that all age groups are equally susceptible while 58.4 percent said they did not know.

Only 6 out of the 190 women said that marasmus is not contagious , while the rest (96.8%) were not certain. Asked whether marasmus patients become susceptible to other diseases, 31.6 percent of the respondents answered in the affirmative and 68.4 percent did not know.

Of the 190 respondents, 34.7 percent thought marasmus was preventable but their idea of prevention measures varied as can be seen from Table 4.14.

Table 4.14 Prevention of Marasmus

RESPONSE	FREQUENCY	PERCENT
No Response	111	58.4
Give More Food	22	11.6
Faithfulness	10	5.3
Traditional Medicine	5	2.6
Follow Customs	7	3.7
Mixed Diet	13	6.8
Modern Medicine + Vaccine	3	1.6
Give Water	1	.5
Other	6	3.2
Not Applicable	12	6.3
TOTAL	190	100.0

40 percent of the women thought that marasmus is curable with 1 woman saying that it is incurable. 58.9 percent of the women did not know. The Table below shows the women's responses to the question who treats marasmus patients most effectively.

Table 4.15 Who Treats Marasmus Patients Most Effectively

RESPONSE	FREQUENCY	PERCENT
No Response	111	58.4
Medical Doctor	28	14.7
Mother Herself	15	7.9
Traditional Doctor	30	15.8
Traditional and Modern Medicine	5	2.6
Other	1	.5
TOTAL	190	100.0

To identify the cultural practises that can lead to marasmus, the mother were asked to name the practises or taboos which if broken can lead to marasmus. 8.9 percent of the women mentioned adultery and failure to follow customs can lead to childhood malnutrition.

It is very clear that the women knew more about kwashiorkor than marasmus.

Residential Characteristics

The statistics on dwelling structures in Kibera present depressingly poor housing conditions. Information was obtained on the type of wall construction material, type of roof and floor, number of rooms and the main source of lighting.

Dwelling units with walls made of mud were most predominant (63.2%), 31.6 percent of the households live on houses with cemented or plastered walls.

There was no differentiation in terms of the type of roofing material as all houses had their roofs made from corrugated iron sheets. 60 percent of the houses had cemented floors with the rest having earth floors.

The study also revealed that most of the households (84.2%) were living in one-roomed houses.

Data on the main source of lighting were also collected. Overall, lantern lamps were the main means of lighting with 57.9 percent of the households reporting that they use lantern lamps.

Around 36 percent of the households used mkebe lamps. Only 2 percent of the households had access to electricity.

RESEARCH FINDINGS

This section presents the findings of the study. The presentation is through cross-tabulations which illustrate the percentage of children with and without malnutrition vis a vis the independent variables. All the independent variables are compared to the nutritional status of the pre-school children.

Number of Meals Taken vs Nutritional Status

A child's stomach is smaller than that of an adult whereas its energy needs are proportionally greater. A child therefore needs feeding more frequently than other members of the family. It was against this background that it was hypothesised: Children who are fed more frequently are more likely to be well nourished than children who are fed less frequently. The Table below depicts the findings of this study.

Table 4.16 Number of Meals Vs Nutritional Status

NUMBER OF MEALS	WELL NOURISHED		MALNOURISHED		TOTAL
	NUMBER	%	NUMBER	%	
2	1	20	4	80	5
3	91	44	116	56	207
4	22	55	18	45	40
TOTAL	114		138		252

df = 2

$\chi^2 = 12.9$

Probability level of 0.05

χ^2 (critical) = 5.991

From the above Table it is evident that 80 percent of the children who ate only twice a day were malnourished whereas only 45 percent of the children who received more than three meals a day were malnourished. The chi-square score of 12.9 at 2 degrees of freedom showed that the relationship between the number of meals a child takes daily and its nutritional status is statistically significant. It should be noted that the hypothesis was not rejected even at the more conservative 0.01 probability level.

Time of Eating Vs Nutritional Status

Households where children eat after all the adults have eaten will tend to have more malnourished children than households where children eat before the other members of the family. The reason for this is that in most cases when adults eat first, little of the food especially protein food is left for the children, their diet as a result is often deficient in important nutrients. X2 test was computed to test the relationship between the two variables and the results depicted in Table 4.17.

Table 4.17 Time of Eating Vs Nutritional Status

TIME OF EATING	WELL NOURISHED		MALNOURISHED		TOTAL
	NO	%	NO.	%	
Before Adults	52	55	42	45	94
After Adults	0	-	4	100	4
TOTAL	52		46		98

df = 1

X2 (calculated) = 5.3

Probability level of 0.05

X2 (critical) = 3.841

It is evident from the table that whereas only 45 percent of the children who ate before the adults were malnourished, all (i.e. 100%) those who ate after the adults had their share were malnourished. The chi-square test also showed a significant statistical relationship between the nutritional status of the children and when the children were given food. These findings confirm the popular view that the adults eat the richest portions leaving the growing children with relatively little food thus the satisfaction of children's nutrient requirements becomes very difficult.

Group Eating Vs Nutritional Status

It was hypothesised that household where group eating is practised will tend to have more malnourished children than household where children eat from separate plates. The reasons are that a young child eats slowly and if everyone in the family eats from the same plate, eating may become a competition and the young child may find that the rest of the family have eaten all the relish before he has had enough.

Table 4.18 Group Eating Vs Nutritional Status

METHOD OF EATING	WELL NOURISHED		MAL NOURISHED		TOTAL
	NO.	%	NO.	%	
Group Eating	6	32	13	68	19
Each Has Own Plate	108	46	125	54	233
TOTAL	114		138		252

df = 1

X^2 (calculated) = 0.5

Probability level of 0.05

X^2 (critical) = 3.841

The chi-square test showed that there is no significant relationship between the method of eating (whether group eating or not) and the children's nutritional status. The study however revealed a different type of group eating from the one observed by Jelliffe and Jelliffe (1959). Here the children only shared the cereal-based dish but each one had his/her own plate of relish which is the most important part of the meal. The children in Jelliffe's study shared both the relish and the cereal-based dish.

Order of Receiving Food Vs Nutritional Status

It was the thesis of this study to show that the order of receiving food has an influence on the nutritional status of the under fives. The assumption was that those who are served first are more likely to receive the best and most nourishing portions of the food than those who are served last. The findings of this study are shown in the Table below.

Table 4.19 Order of Receiving Food Vs
Nutritional Status

ORDER OF RECEIVING FOOD	WELL NOURISHED		MALNOURISHED		TOTAL
	NUMBER	%	NUMBER	%	
1st	87	55	72	45	159
2nd	18	29	45	45	63
Last	9	30	21	70	30
TOTAL	114		138		252

df = 2

X² (calculated) = 8

Probability level of 0.05

X² (critical) = 5.991

As the table 4.19 shows, out of the 30 children who were served last, 70 percent were

malnourished. The chi-square score at 2 degrees of freedom showed that there is a significant relationship between the children's nutritional status and the order in which they receive food during meals. The hypothesis stood even at the more conservative 0.001 probability level.

Age of Introducing Supplementary Foods Vs
Nutritional Status

It is well documented that mother's milk is adequate for all babies until they reach 4 months of age and for many babies until they are 6 months. Early supplementation is known to be unnecessary and potentially harmful especially in conditions where hygiene is inadequate. It was the thesis of this study to show that introduction of supplementary food at age less than 4 months can be harmful to the nutritional status of a child. Table 4.20 depicts the findings of this study.

Table 4.20 Age of Introducing Supplementary
Foods Vs Nutritional Status

AGE OF INTRODUCING SUPPLEMENTARY FOODS	WELL NOURISHED		MALNOURISHED		TOTAL
	NUMBER	%	NUMBER	%	
0 - 4 Months	46	51	44	49	90
5 - 7 Months	22	56	17	44	39
8 - 9 Months	2	40	3	60	5
TOTAL	70		64		134

df = 2

X² (calculated) = 1

Probability level of 0.05

X² (critical = 5.991

Of the children who received supplementary food before the age of 4 months, 49 percent were malnourished while 60 percent of the children whose diet was supplemented after the age of 7 months were malnourished. The chi-square test showed no statistically significant relationship between the age at which the diet was supplemented and the children's nutritional status. Similar results were found in a study by the Central Bureau of Statistics (1979). It can be argued that the supplementary foods introduced were inadequate and this is more felt in children

over the age of six months since sole breast-feeding is sufficient for the first six months of a child's life. As mentioned earlier, the most common supplement to breast-milk was porridge which is inadequate to meet a child's nutrient needs.

Duration of Breast-feeding Vs Nutritional Status

Prolonged breast-feeding is vitally necessary for growth and survival as breast milk is the only source of good protein. It was hypothesised that children who are breast-fed for a long time are more likely to be better nourished than children breast-fed for a short duration of time. Table 4.21 shows the findings of this study.

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Table 4.21 Duration of Breast-Feeding Vs
Nutritional Status

DURATION OF BREAST-FEEDING	WELL NOURISHED		MALNOURISHED		TOTAL
	NUMBER	%	NUMBER	%	
0 - 6 Months	0	-	6	100	6
7 - 12 Months	8	29	20	71	28
13 - 18 Months	16	36	28	64	44
19 - 24 Months	16	50	16	50	32
25 + Months	5	71	2	29	7
TOTAL	45		72		117

df = 4

X² = 8.8

Probability level of 0.05

X² (critical) = 9.488

?

As can be seen from Table 4.21, all the children who stopped breast-feeding between the ages 0-6 months were malnourished. Out of the 44 children who stopped breast-feeding between 13-18 months, 64 percent were malnourished. The study also revealed that 71 percent of the children who stopped breast-feeding after their second birthday were malnourished. The chi-square test showed no significant relationship between the

duration of breast-feeding and the nutritional status of the children. These findings confirm those of the C.B.S. (1979) that children breast-fed for long periods (1 year or more) tend to be more nutritionally stunted than children breast-fed for shorter periods. It must be emphasised that this should not be taken as evidence that prolonged breast-feeding is the cause of malnutrition. A more likely explanation is that breast milk alone is not sufficient to maintain an adequate rate of growth in most children after the age of six months at which age it is usually recommended that a well balanced supplementary food should be introduced to the child's diet. If children in the survey who were breast-fed for longer than a year were receiving little or no additional food then it would be expected that these children would be malnourished.?"

Mother's Nutrition Knowledge Vs Nutritional Status

It is hoped that increased knowledge of nutrition the mothers will promote increased frequency of infant feeding, the use of locally made weaning foods, the addition of high-energy density foods to infant diet and changing practices that are

seen potentially harmful to their infants and supporting those likely to be beneficial. The findings of this study are shown in Table 4.22

Table 4.22 Mother's Nutrition Knowledge Vs
Nutritional Status

SCORE	WELL NOURISHED		MALNOURISHED		TOTAL
	NUMBER	%	NUMBER	%	
0 - 3	77	41	112	59	189
4 - 7	31	61	20	39	51
8 - 11	6	50	6	50	12
TOTAL	114		138		252

df = 2

χ^2 (calculated) = 7

Probability level of 0.05 χ^2

χ^2 (critical) = 5.991

The chi-square test showed a strong relationship between the nutrition knowledge of the mother and the nutritional status of their children. 112 of the children whose mothers score between 0-3 were malnourished while 61 percent of the children whose mothers scored between 4-7 were well nourished. Similar results were found in a study

by Sunder et al., (1988). We can conclude that mothers with nutrition knowledge were able to put this knowledge to work in improving their children's nutritional status.

3

CHAPTER 5

Conclusions and Recommendations

The main objective of this study was to investigate the occurrence of childhood malnutrition in Kibera. The study concentrated on cultural aspects that relate to childhood malnutrition. Data was collected regarding feeding patterns and cultural concepts of causation, cure and prevention of kwashiorkor and marasmus.

Traditional beliefs with regard to childhood malnutrition were found to be strong among Kibera residents. The symptoms of kwashiorkor and marasmus are usually not associated with inadequate feeding but are seen as being caused by the transgression of sexual taboos by the parents.

To further investigate the possible influence of mothers nutrition knowledge on the occurrence of malnutrition, the study also focused on feeding and weaning patterns, knowledge of food groups and maternal pre-natal and post-natal diet. The study revealed that the diet of under fives was

inadequate and lacking in nutritious protein-rich foods. The importance of a balanced supplementary food is underscored by the finding that breast-fed infants particularly in the second six months of life fail to receive adequate calories from breast milk. Most of the supplementary foods introduced were cereals/pulses.

The study also revealed patterns of intra-familial distribution of food that favour the adults and elderly over young children. In most households, children are served last or eat after the adults had eaten. The order of receiving meals was found to have an impact on children's nutritional status.

The finding that maternal knowledge of nutrition is inadequate has serious implications for their children. This is exhibited in the weaning and feeding process of children and the maternal pre-natal and post-natal diet. In households where no malnutrition had occurred, the mothers tended to have more knowledge of nutrition. The results of the present study confirm that cultural beliefs and practices play an important role in patterns and practices of infant and children feeding thereby affecting their nutritional

status.

5:2 RECOMMENDATIONS

Based on the findings and observations of the study, the following recommendations are made:

1. The community should be encouraged to continue breast-feeding their babies for prolonged periods of time.

2. Adequate supplementation of the children's diet at the ages of four to six months together with continued breast-feeding should be emphasised.

3. Mothers should be encouraged to use low cost nutritionally good traditional weaning foods and to guard against the purchase of 'advertised prestige foods.

4. Efforts should be aimed at modifying feeding patterns to encourage giving children food on separate plates, to give less bulky portions and more frequent feedings.

5. Basic nutrition and child care should be introduced into the curriculum of primary and

secondary school education. This would to a great extent enable the school leavers to bring up better nourished families.

6. Women play important roles in the production, preparation and serving of food within the family. The home preparation of appropriate weaning foods will depend on their knowledge of nutrition. Health workers should therefore educate the mothers on good but practical weaning habits. This should be done through actual demonstrations of preservation and cooking of food, especially protective foods for children. The demonstrations should use foodstuffs which are affordable, locally acceptable and available.

7. Health workers should stress the importance of a balanced diet. They should also stress on the needs of children, pregnant and lactating women in order to ensure a fair share of protein and other foods for children and increased supplies of food for pregnant and lactating women.

8. To support women and mothers in their effort to improve their health and nutritional status and that of their children, it is important that nutrition education and information be provided to various other individuals who are influential

with the family such as fathers, midwives, grandparents, social workers, community leaders and others who have an impact on the social behaviour and nutritional habits of vulnerable groups. The education and information should therefore be undertaken with the active participation of these people.

9. The mass media such as radio, television, newspapers, magazines, posters, newsletters, pamphlets and leaflets should be used to educate the masses on the importance of nutrition.

This information should be directed to school children, youth, pregnant and breast-feeding women, men, community leaders, decision-makers and planners so that they can act as vehicles of change.

10. It is difficult to improve infants health whilst living conditions remain so poor. One of the problems identified by the study was the inadequate sewage and drainage facilities. The Nairobi City Commission should improve the environmental situation of Kibera by providing them with proper sewerage and drainage facilities and make arrangement for refuse disposal as well. On the other hand the community should be encouraged to keep their compounds clean and

ensure proper disposal of waste matter.

11. The study area people were predominantly of low economic status with very low incomes. It would be recommendable for the government to raise salaries and social status of the low income groups living in urban areas. The community should also initiate income generating activities which would benefit them.

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APPENDIX I

6:2

QUESTIONNAIRE

Good Day. I am a student from the University of Nairobi and am interested in learning about nutrition in this area. I shall be very grateful if you give me the following information. I assure you that whatever you tell me will be treated with strict confidence.

1. BACKGROUND INFORMATION

Respondent's name

(a) Village

(b) Age: _____ years

(c) Ethnic group _____

(d) Religion _____

(e) Marital Status (Tick one)

Single

Married

Divorced

Separated

Widowed

2. (a) How many children (living) do you have?

.....

(b) How many have died?

.....

(c) What was the cause?

.....

3. How many people altogether live in this household?

(State number)

4. How far have you gone in school?

(Tick one)

None

Std 1-4

Std 5-8

Secondary 1-4

Secondary 5-6

T r a i n i n g (S p e c i f y)

..... 2

5. (a) What is your occupation?

.....

(b) Who else in this household has an occupation and what are their occupations?

Relation _____ Occupation

6. What is the total household income per month?

Kshs..... (Specify)

7. What is your monthly expenditure on foodstuffs?

Kshs..... (Specify)

EATING HABITS

8. (a) How many meals are taken in your household per day?

One

Two

Three

More than three

(b) If less than three, state
why

.....
.....

9. Who is responsible for the overall
distribution of food during meal time?

(Tick one)

Father

Mother

Brother

Sister

Other

(Specify).....

10. In which order is the food received by
the members of the household?

(Indicate 1, 2, 3, 4, etc.)

Husband

Wife

Sons

Daughters

Infants

Others (Specify)

11. (a) Do children eat together with the
adults?

a. Yes

b. No

(b) If 11b, do they eat before or after the adults have eaten?

a. Before

b. After

12.✓ Do children eat from

a. Same dish

b. Each from his/her own plate

13.✓ How is food eaten?

a. Only with fingers

b. With a spoon

14. Who feeds the young children?

(Tick one)

They feed themselves

Mother

Ayah

Older children

Other (Specify)

15. When meat, fish, eggs or milk are available who should eat them?

a. Men

b. Pregnant and lactating women

c. Children

- d. Babies
- e. All members of the family
- f. Other (Specify)

INFANT FEEDING

(Take the child closest to 2 years)

16. (a) Age of child Months
17. Do you breast-feed this child?
- a. Yes (Ask Q 18 - 21)
 - b. No (Go to Q 22 - 21)
18. When is breast milk given? (Tick one)
- a. On demand of the child
 - b. According to schedule
 - c. According to maternal inclination
19. Do you give your child supplementary food with breast-feeding?
- a. Yes (Ask Q 21)
 - b. No
20. (a) At what age did the child receive food other than breast milk?
..... Months

(b) What foods were these?

.....
.....

21. ✓ At what age of the child did you
discontinue breast-feeding?

..... Months

22. ✓ How did you stop breast-feeding?

- a. At once
- b. Gradually

23. ✓ Why did you stop breast-feeding?

- a. Milk dried up
- b. Mother fell ill
- c. Baby fell ill
- d. Baby too old
- e. Mother got pregnant
- f. Other reason (Specify)

24. What kind of food do you now give to
your child?

.....
.....
.....
.....

(For all mothers)

25. What did your child eat and drink
(excluding water) yesterday?

Morning.....
.....

Afternoon.....
.....

Evening.....
.....

KNOWLEDGE OF NUTRITION

26. (a) Have you heard of food groups?

- a. Yes ?
- b. No

(b) If yes, where did you hear about them?

- a. Baraza
- b. Health centre
- c. Friend
- d O t h e r
(Specify).....

(c) Can you name the ones you know , what they do and examples of their source?

<u>FOOD GROUP</u>	<u>FUNCTION</u>	<u>SOURCE</u>
-------------------	-----------------	---------------

27. (a) Do you prepare special food for children aged 6 - 18 months?

a. Yes

b. No

(b) If yes, What foods and what are their characteristics?

.....

7

.....

.....

(c) What foods and drinks are appropriate for the following categories of people?

CATEGORY	FOODS AND DRINKS
Pregnant women	
Breast-feeding women	
Infants	
Young children	
Men in general	
Sick People	

28. ✓ What are the foods that the following categories of people should not eat and why?

CATEGORY	FOOD AND DRINK	REASON WHY
Pregnant women		3
Breast-feeding women		
Infants		
Young children		
Men in general		
Sick people		

KNOWLEDGE OF KWASHIORKOR

29. Sometimes a child gets swollen arms,
legs and cheeks and the hair turns
reddish brown.

What do you call that sickness?

.....

30. (a) Has anybody in this household suffered
from it?

a. Yes

b. No

(b) If yes, How many?

(State number)

.....

(c) What was their age when they suffered
from it?

(State age in months).....

31. What causes kwashiorkor?

.....

.....

32. How is it treated?

.....

.....

33. Who do you think is more likely to get kwashiorkor?

- a. Babies 0-12 months
- b. Children 1-3 years
- c. Children 4-5 years
- d. Adults
- e. All age groups

34. If a person is suffering from kwashiorkor, is it possible to pass it on to other people?

- a. Yes
- b. No
- c. Do not know

35. Does somebody who has kwashiorkor become easily susceptible to other diseases?

- a. Yes
- b. No
- c. Do not know

36. (a) Can kwashiorkor be prevented?

a. Yes

b. No

c. Do not know

(b) If yes, how?

.....
.....

(c) If no, why do you think so?

.....
.....

37. (a) Can kwashiorkor be cured?

a. Yes

b. No

c. Do not know

(b) If yes, who treats ^{ly} kwashiorkor effectively?

.....
.....

38. (a) Are there certain social practises or taboos which if not performed or if broken can lead to kwashiorkor?

a. Yes

b. No

c. Do not know

(b) if yes, which practices?

.....
.....

KNOWLEDGE OF MARASMUS

39. Sometimes a child becomes very thin and with a face like an old man. What do you call that sickness?

.....

40. (a) Has anybody in this household suffered from it?

a. Yes

b. No

2

(b) If yes, how many? -

(c) What was their age when they suffered from it?

(s p e c i f y M o n t h s)

41. What causes marasmus?
.....
.....
42. How is it treated?
.....
.....
43. Who do you think is more likely to get marasmus?
- a. Babies 0-12 months
 - b. Children 1-3 years
 - c. Children 4-5 years
 - d. Adults
 - e. All age groups
44. If a person is suffering from marasmus, is it possible to pass it on to other people?
- a. Yes
 - b. No
 - c. Do not know
45. Does somebody who has marasmus become easily susceptible to other disease?
- Yes
 - No
 - Do not know

46. (a) Can marasmus be prevented?

Yes

No

Do not know

(b) (If yes) how?

.....
.....

(c) (If no) why do you think so?

.....
.....

47. (a) Can marasmus be cured?

(a) Yes

(b) No

(c) Do not know

(b) (If Yes) who treats [?] marasmus
effectively?

.....
.....

48. (a) Are there certain social practices or
taboos which if not performed or broken
can lead to marasmus?

(a) Yes

(b) No

(c) Do not know

(b) (If Yes) which practices?

.....

.....

ECONOMIC STATUS

What source of lighting do you use in the house?

- a. None
- b. Lantern lamp
- c. Mkebe lamp
- d. Pressure lamp
- e. Any other (specify)

Do you own any property e.g. a bicycle, radio?

- (a) Yes
- (b) No

If yes, what in particular?

- a. Bicycle
- b. Watch
- c. Radio
- d. other

OBSERVATION INFORMATION (DO NOT ASK)

What is the house made of?

Walls:

- a. Mud
- b. Blocks
- c. Bricks
- d. Wood
- e. Any other (specify)

Roof:

- a. Thatched
- b. Iron sheets
- c. Any other (specify)

Floor:

- a. Earth
- b. Cement
- c. Any other (specify)

Number of rooms in the house
(Specify number)

ANTHROPOMETRIC MEASUREMENTS

Child's age (in months)

Weight